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THE NERVOUS SYSTEM AS INFLUENCED BY HIGH ALTITUDES *

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The frequency with which individuals exhibit nervous symptoms, or complain of "nervousness" while living at increased elevations is responsible for the popular or common belief that one may expect to become "nervous" because one lives at the higher altitudes. This view has obtained so long that it is expressed with as little consideration as its value, empirically, really merits; but in the belief that a general *a priori* review of the underlying factors involved might be advantageously brought to the attention of the section, it was chosen as being of sufficient interest to form a part of the annual communication of the chairman and at the same time relieve it of an aspect of formality or conventionalism.

Some one has commented on the humor of the tendency in Colorado to charge to the altitude all of the evil or disagreeable changes experienced, while the climate is invariably credited with the benefits derived. Such expressions as "high altitudes are too hard on the nervous system" and "one cannot live any length of time at such an elevation without a nervous breakdown," and again, "women cannot live in Leadville (10,200 feet) because their nervous system does not seem to stand the altitude—they become nervous wrecks" are merely the result of experiences and accepted by the public, and in no little part by the profession, without inquiry as to the reason for the manifestations commonly grouped under the term "nervousness" being brought about.

The first clue to a most important factor in determining these manifestations is to be found in the improvement frequently observed as a result of a more or less prolonged stay at a lower elevation or at the sea level—indeed, so often is this the case that the advice has become a routine. It would appear to be likewise significant that the plethoric type of individual rarely finds it necessary to leave the higher altitudes, while it is most often those evidencing a type of relative or absolute anemia who seem invariably to find relief at the lower elevations. A sufficient number of cases have been observed in which environmental influences could be eliminated as playing a negligible rôle.

It is not a definite syndrome with which we have to deal, but rather a state or condition of the nervous system probably best characterized as an irritability or hyperexcitability which may manifest itself in the motor, sensory or psychic spheres, or a combination of them, in an otherwise normal individual. Associated with this increased excitability is an increased rapidity of fatigue which finds expression in muscular weakness and diminished physical endurance, as well as failure in adaptability and power of concentration mentally. They complain of a mental unrest approaching anxiety, and find difficulty in carrying on the usual mental requirements of their occupations, owing to the failure to concentrate or sustain the attention. It is quite indicative when an individual experiences his best functional ability on awakening in the morning, which rapidly gives way to an unusual degree of fatigue, increasing as the day progresses. This condition may be the forerunner of a simple neurasthenia, or in the presence of a congenital predisposition the development of the more profound neuroses is facilitated. The psychic determinants of neurotic states find such a nervous system an easier prey to their influence.

If we turn our attention now to the purely physical facts in relation to altitude we find there is a progressive diminution in atmospheric pressure in accordance with the elevation. For example, at the sea level the barometer will register in the neighborhood of 760 mm. (30 inches) with a temperature of 50 degrees; at Denver (5,280 feet) under like conditions 630 mm. (24.74 inches) and at the summit of Pike's Peak (14,109 feet) from 452 to 462 mm. (17.8 to 18.2 inches). With the diminution of pressure, the atmospheric expansion is inversely proportionate and consequently the weight of oxygen in a given volume of air is correspondingly diminished.

Applying these facts physiologically, it is apparent that in order that a requisite amount of oxygen be transported, an increase in the volume of air inspired must take place; an increase in the lung area utilized; a greater number of corpuscles be exposed to aeration, and an increase in the amount of hemoglobin. The latter would seem to be required in even greater amount since, as Barcroft[1] has shown, the saturation power of hemoglobin varies with the oxygen pressure.

In 1911, the Anglo-American Pike's Peak Expedition, undertaken by members of Oxford and Yale universities, made extensive physiologic observations,[2] when it was found that "the percentage of hemoglobin in the blood increased for several weeks on the summit of Pike's Peak, and varied in various *acclimatized* persons from 115 to 154 per cent. on the scale of the Gowers-Haldane hemoglobinometer, corresponding to a percentage of oxygen capacity of from 21 to 28.5

* Chairman's address, read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Barcroft: Respiratory Function of the Blood, 1914, p. 15.
2. Phil. Tr. Roy. Soc. London, Series B, cciii, 185.

c.c. of oxygen per 100 c.c. of blood. The number of red corpuscles increased parallel with the hemoglobin and there was no change in relation between the coloring power and oxygen capacity of the hemoglobin or in the dissociation curve of hemoglobin in the arterial blood. The increase in hemoglobin was apparently due to" concentration of the blood "for the first few days," but "afterwards entirely to a large increase in the total amount of hemoglobin." Barcroft,[3] in commenting on his own observations and those just mentioned, concludes that "in each case there was a gradual rise in the total oxygen capacity, which reached its maximal value only after some time, about three weeks after the ascent. This perhaps is the essential point, for it proves quite clearly that the body reacts to the altitude either by producing increased quantities of hemoglobin or by retaining what would otherwise be broken." In this regard, however, the observations of Bürker[4] differ somewhat in that the individual variations were found to be greater. He found that smaller and lighter individuals reacted most strongly and more promptly; hemoglobin and erythrocyte count increased uniformly, so that the average hemoglobin content of the corpuscle underwent no essential change. In the larger and heavier individuals the hemoglobin content increased more than the numerical count so that the corpuscles were richer in hemoglobin in the higher elevations. The same author states that "The blood reaction as influenced by high altitudes is to be construed as an adaptation of the oxygen-carrying surface of the blood to the altered external conditions of the lower elevations, especially to the want of oxygen through the diminished atmospheric pressure."

The symptoms observed on ascending Pike's Peak, such as blueness of the lips and face, loss of appetite, nausea and vomiting, intestinal disturbances, headache, fainting in some persons, periodic breathing and great hyperpnea on exertion, are transitory manifestations and persist two or three days, when distinct signs of acclimatization become apparent. In this process of acclimatization, three factors became evident: (*a*) increased secretory activity of the lining cells of the lung alveoli; (*b*) lowering (in consequence of the diminished alkalinity of the blood) of the threshold of alveolar carbon dioxid pressure, and (*c*) increased percentage of hemoglobin in the blood. The stimulus to these compensatory changes is deficient aeration of the blood passing through the lungs; and the compensation attained is, though very considerable, not complete.

Acclimatization in the normal individual presupposes, therefore, the ability to supply especially the required increase in the red blood cells and in the amount of hemoglobin. The degree of this ability then determines the completeness of acclimatization, and the oxygen want must obviously be in proportion to deficiency in the power of adaptability.

With this brief reference to the experimental work of Zuntz, Bürker, Barcroft, Haldane, Douglas, Henderson, Schneider and others, it is obvious that an increased activity of the blood-forming organs is the normal process of adaptation stimulated through oxygen want in the higher altitudes. Moreover, it becomes apparent that the clinical standard of corpuscular and hemoglobin determinations which might be regarded as within the normal at the sea level, when obtained at an elevation of 5,000 feet or more, may be regarded as a relative anemia which deserves consideration as a possible foundation for pathologic symptoms.

Now, as is well stated by Sewall[5]:

> The very essence of constitutional disease is the failure of physiological response on the part of living tissues to the external stimuli which are their normal excitants. Far from being strange, it is to be expected that in a certain proportion —a large proportion—of people the physiological response of the blood-forming tissues to the stimulus of altitude should be slow or imperfect. The clinical result is relative anemia.

Assuming, then, that anemia results fundamentally in the limiting of oxygen supply to the tissues, it seems proper to direct attention to the nervous tissue metabolism under like circumstances. The necessity for oxygen, and the fact that it is used up during the action of the brain,[6] can be very strikingly demonstrated by the experiment of Hill with methylene blue, and it can also be shown that this use is confined to the period of activity.

Thurnberg[7] showed that the consumption of oxygen and production of carbonic acid in nerve cells can be demonstrated directly by chemical analysis.

That individual ganglion cells present different resistances to anemia has been further confirmed by Landergren's[8] work on the phenomena of acute asphyxia; especially noteworthy is the finding of a brief rise of activity in the vasobulbar center.

Verworn's[9] work on the metabolism of nerve cells by means of strychninized frogs demonstrated that when the excitability was lost, the constituent in the blood responsible for restoration was not organic nutritive materials, but solely due to the oxygen. From his result he distinguishes two fundamentally different factors in the paralysis of the centers, namely, the fatigue due to the accumulation of the toxic products of metabolism and exhaustion due to the consumption of the supply of oxygen.

It can be proved in many ways that the passage of a nerve impulse through the nerve centers requires the expenditure of energy by these centers. It is significant that in all nervous systems, especially in the higher animals, that arrangements are made for their free supply of oxygen.[10] Very short deprivation of oxygen causes a complete block throughout the system, in many cases preceded by a short period of increased excitability or ease of transmission.

As early as 1879 Schmoulewitsch,[11] actuated by the experiment of Stevson, dating from the seventeenth century, found that deprivation of blood did not, as was previously observed, cause an immediate loss of irritability. On the contrary, this is for a while even increased and commences to disappear only after a certain degree of augmentation. The same phenomenon was observed after section of a nerve. The irritability of the corresponding muscle is increased for the first few moments. "In his opinion, given at that time, this was to be attributed also to anemia, as the immediate result of nerve section. In this regard his conclusions are interesting:

3. Barcroft: Respiratory Function of the Blood, Barcroft, 1914, p. 130.
4. Bürker: Ztschr. f. Biol., 1913, lxi, 379.
5. Sewall: Colorado Med., 1915, xii, 41.
6. Halliburton: Biochemistry of Muscle and Nerve, 1904, p. 79.
7. Thurnberg, quoted by Luciani: Human Physiology, 1915, iii, 231.
8. Landergren, referred to bby Luciani: Human Physiology, 1915, iii, 267.
9. Verworn, referred to by Luciani: Human Physiology, 1915, iii, 271.
10. Starling: Human Physiology, 1915, p. 314.
11. Schmoulewitsch: Bull. gén. d. therap.; abstr., Periscope, Jour. Nerv. and Ment. Dis., 1879, vi, 154.

That the anemia is the cause of increased irritability of the muscles, I have proven by the following experiments:

1. After compression of the aorta or ligating the artery of a muscle, we cannot produce any augmentation of the irritability after section of a nerve. This demonstrates that this augmentation depends exclusively upon the circulation, for, as I say, the circulation once interrupted, the section of the nerve is without effect.

2. In curarizing an animal to the stage of complete paralysis, we always find an increase of muscular irritability following the section of the nerve. Here, evidently, only the vasomotor nerves can act, since, as has been demonstrated, they are not easily paralyzed by curare.

Anemia, therefore, like certain affections of the nervous system that disorder the functions of the vasomotors, should increase the muscular irritability, a fact observed clinically, but not as yet sufficiently demonstrated theoretically.

. It seems evident, therefore, that in the absence of oxygen supply the excitability of the protoplasm of nerve and other cells is lost—a fact which at first sight appears to be in conflict with clinical experience. It must be kept in mind, however, that we are concerned with a lessened oxygen supply, rather than with a complete withdrawal.

Is the increased irritability and consequent fatigue to be attributed to the insufficient oxygen supply primarily, or to the influence of the products of metabolism which have not been sufficiently oxidized to secure their elimination?

In order that expressions from more competent and authoritative sources might be presented, personal communications with the foremost physiologists were solicited and in general reveal an inclination to the former view, namely, that the irritability is to be charged to the diminution of oxygen supply through failure to effect the ordinary compensation. Professor Henderson considers that a "moderate deprivation of oxygen may readily cause an increase in irritability and a greater readiness to fatigue, while an extreme deprivation reduces irritability." He also calls attention to the fact that in the term "irritability" it is not an increase of functional power that is implied, but rather the reverse—an ease of excitability or irritability in what might be considered the popular rather than the scientific sense.

Dr. Haldane expresses himself as in accord with the writer, in that the hyperexcitability is to be attributed to oxygen want, and does not accept the view that oxygen want is sedative; and to emphasize his view, points out "that the effect of cutting off a man's victuals is not sedative—anyhow in the early stages." He further summarizes his views as: "1. Want of oxygen, within limits, is or may be excitant and not sedative. 2. The amount of oxygen in the blood is not an index of sufficiency at low pressures."

The unoxidized toxic or intermediary products of metabolism are preferably to be regarded as depressants, according to Dr. Howell, and in accordance with their concentration; although he cites the observation of Lee, that the first effect of the fatigue products of muscular contraction is an increase of irritability followed by depression when the concentration is presumed to have increased.

Without entering further into details with reference to the mechanism of the finer adjustments of the body to the oxygen supply, such as the carbonic acid or rather the hydrogen-ionic influence on the respiratory center, the relation of muscular exertion to its production, mode of formation, relations of alveolar and blood content and influences modifying these relations, etc., it seems established, that there is an irritability of the nervous system to be attributed to diminished oxygen supply by reason of the failure on the part of certain individuals to bring about an adaptation to the conditions incident to the diminished atmospheric pressure.

It must be admitted that there is good reason to suspect the possibility of some remote pathologic process as a fundamental factor inhibiting the power of adaptability in certain persons.

The estimation of hemoglobin by means of most of the ordinary methods in use depends on individual judgment of shades of color, and variations are often quite considerable. There is a strong tendency to read the percentage too high, especially when the examination is made in a subdued light. This was found to be particularly true when daylight was the source of illumination. In eighty-nine comparative observations made with day, and artificially lighted instruments, taking the judgments of three individuals, the estimations were invariably higher by the latter method, and varied from 6 to 15 per cent.

The corpuscular count was found to correspond so uniformly to the hemoglobin percentage that in the majority of cases it might be omitted.

As a result of several years' careful observations at an altitude of about 5,000 feet, it seems evident that the threshold of nervous stability varied between 82 and 88 per cent., corresponding to a corpuscular enumeration of from 4,100,000 to 4,400,000, and influenced in individual cases by demands made on the nervous structures as determining causes.

It was recognized quite early that the clinical ineffectiveness of the ordinary chalybeate therapeutic measures was not to be regarded as negativing the lowered blood values as a cause of the nervous irritability, since not infrequently subsequent estimations made in the absence of clinical improvement were found to show but little increase and were in some instances even lowered. It was necessary to change the form of iron administration, especially in the stationary cases, until one was found to be effective in elevating the hemoglobin content. With this elevation the clinical improvement was uniformly constant, regardless of the means of accomplishment. In a few instances the removal to a lower altitude with the continuation of the iron administration proved effective when no impression was observed while at the higher elevation.

A marked increase in the elimination of the phosphates noted in a majority of the cases suggested the administration of the alkaline and earthy normal phosphates, and in some of the stationary cases seemed to augment the iron assimilation.

The question "Do so-called neurasthenic cases or those of 'nervousness' occur more frequently at high altitudes?" must be answered in the negative, but for several reasons. First, the general standard of living is better than in the more congested centers of population; second, the confined artificially lighted indoor workers are less common; third, there is a greater average of bright, cloudless days; lastly, the greater intensity or actinism of the light.

Finally, it is the class of patients who are able to live with more comfort at the lower altitudes and who manifest irritable neurotic disorders repeatedly on going to the higher elevations that prompted this investigation and as a result of which it may be concluded that:

1. The demand for oxygen-carrying elements of the blood increases directly with the altitude.

2. In normal individuals this requirement is met through an increase in the red blood corpuscles and hemoglobin in from three to five weeks—the normal acclimatization.

3. This power of adaptation is diminished or wanting in certain individuals.

4. Deficient acclimatization results in oxygen want or relative anemia.

5. As a result of diminished or limited oxygen supply, the increased excitability or irritability of the nerve structures may be explained.

6. If by therapeutic or other means, the blood forming mechanism can be stimulated into activity, individuals should find no more difficulty in living tranquil lives in the high altitudes than at the sea levels.

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COMPLICATIONS AND SEQUELAE OF THE OPERATION FOR INGUINAL HERNIA

AN ANALYSIS OF ONE THOUSAND AND FIVE HUNDRED CASES AT THE MASSACHUSETTS GENERAL HOSPITAL*

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The operation for the repair of inguinal hernia is rightly regarded as one of the most satisfactory and simple of surgical procedures. The operative technic has become practically standardized for the routine case, the general principles of closure of the canal being accepted with difference of opinion only as to the merits of transplantation, or nontransplantation, of the spermatic cord. Special and unusual cases, particularly large, direct hernias, may require special measures, such as transplantation of the rectus muscle, or sheath, or implantation of fascia lata.

Large series of cases have been reported by individual operators of great experience, showing a very high percentage of cures and a practically negligible death rate. Coley[1] reports 3,100 cases of inguinal hernia in which operation was performed at the Hospital for Ruptured and Crippled from 1891 to 1912, with twenty-eight recurrences, less than 1 per cent. of the total number. Out of 3,383 cases of hernia of all kinds in which operation was performed there were six deaths, a mortality of 0.17 per cent.

The statistics of Wölfler's clinic at Prague comprise 1,460 nonincarcerated inguinal hernias in which operation was performed between 1895 and 1910, with eight deaths, a mortality of 0.63 per cent. Relapses after operation were estimated at from 5 to 8 per cent.

The dissemination of such favorable modern statistics as these, together with improvements in general anesthesia, the introduction of spinal anesthesia, and wide adoption of local anesthesia have greatly extended the field of this operation. An increasing number of the ruptured are insistently demanding surgical relief from the uncertainties and annoyances of truss treatment.

Patients who a few years ago would have been rejected as unfit surgical risks on account of age, infirmity or intercurrent disease are now readily accepted for this operation, until it is beginning to be a question if the pendulum is not already swinging too far. At any rate, it seems an opportune time to check up results, to audit, as Codman would express it, our hernia accounts.

The 1,500 cases which form the basis of this report were consecutive cases of inguinal hernia in which operation was performed at the Massachusetts General Hospital from October, 1908, to December, 1914. Definitely strangulated hernias are not included, but cases of incarceration without acute symptoms are counted.

In considering these statistics, it must be borne in mind that the operations were performed by a large number of surgeons of varying degrees of experience, no less than seventy-five individual operators. There were 1,093 operations done by members of the visiting staff, the largest number to the credit of any one operator being 117, and the smallest, 1; 663 operations were done by fifty-three different members of the junior house staff.

The patients also showed extreme variation as to age, physical condition and social condition, as would be expected in a large general metropolitan hospital. Comparison of such statistics with those of single operators dealing with somewhat selected material cannot but be disadvantageous.

The youngest patient was 10 months of age, the oldest 77 years. There were ninety patients between 1 and 10 years of age. Eight patients were over 70. The largest number of cases fell in the decade between 20 and 30, namely, 397.

There were 1,388 males and 112 females. In 1,244 cases the hernia affected one side only; in 256 it was double. In eighty-eight cases the hernia was direct, in the others indirect. No cases of strangulated hernia were included. In ten cases the hernia was of enormous size. In sixty-nine cases the hernia was complicated by undescended testicle. There were nine cases in which the bladder was contained in the sac. In one of these cases there was a large stone in the bladder contained in the hernial sac. The appendix was found in the sac eight times, and removed in the course of the operations forty-six times. There were seven cases of sliding hernia. There was hydrocele present in forty cases, marked varicocele in twenty-six cases. In fifty cases there had been a previous operation for hernia, with recurrence.

In the 1,500 cases there was a total of 1,756 operations, counting double hernia as two operations. In the male cases the Bassini technic was employed 834 times, Ferguson 764, and Halstead fifteen, with twenty-four cases of varying and miscellaneous technic.

In sixteen cases in which the hernia was complicated by ectopic testicle, orchidectomy was performed. In fifty cases the undescended testicle was brought down into the scrotum; in one case it was dropped back into the peritoneal cavity. In nine cases orchidectomy was done in the course of the operation on account of tuberculosis, gumma or other lesion of the testicle.

In many cases operations for other conditions, such as gallstones, ventral hernia, stricture of urethra, etc., were done at the same sitting.

The anesthesia was general in 1,319 cases. Spinal anesthesia was used in eighty-nine cases. Spinal anesthesia was supplemented by general in nine cases, and local in six cases. Local anesthesia was used alone in seventy-five cases. There was one case of rectal anes-

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Coley: Keen's Surgery, vi.

thesia, and one case in which the anesthetic was not stated.

Accidents of operation were reported as follows: Injury to the bladder in two cases, with immediate suture, without ill effect. The vas deferens was reported cut seven times; in one case end-to-end suture was attempted. In two cases a small nick was made in the bowel and immediately sutured without bad result. There were no cases of injury to the iliac vein.

There were eight deaths in this series, a mortality of 0.53 per cent. In two of these fatal cases there were complicating conditions present which were largely responsible for the result. One case was that of a man of 63 with diabetes mellitus, having a scrotal hernia and symptoms of severe cystitis. Under spinal anesthesia a suprapubic cystotomy was done; it was then found that there was a hernia of the bladder through the inguinal canal. As the bladder could not be withdrawn through the hernial opening, the inguinal canal was opened and a stone was found in the portion of the bladder lying in the hernial sac. The stone was removed, the inguinal canal repaired and bladder closed about a suprapubic drain. The patient died of sepsis. This unusual case might, I think, fairly be left out of hernia statistics.

In the other complicated case a ventral hernia was repaired at the same sitting; general peritonitis developed, with fatal result. Necropsy showed that the peritonitis developed from sepsis in the ventral hernia wound. In this case it is manifestly unfair to burden the inguinal hernia operation with the fatal result. This leaves six cases of straight hernia with fatal issue. In three cases death occurred suddenly, and unexpectedly, on the fifth, thirteenth and fourteenth days, respectively, and was ascribed clinically to pulmonary embolism. There were no necropsies.

In one case the patient, a feeble man of 69, with double hernia, gradually petered out and died comatose on the tenth day.

In another case of double hernia a large hematoma developed which was subsequently drained. A secondary operation was performed on the eighth day on account of abdominal pain, distention and vomiting, with high temperature. Perforated ulcers of the colon were found, with general peritonitis. Necropsy showed no direct connection between the hernia operation and the peritonitis, which was evidently the result of perforation of ulcers of the colon.

In the last case death resulted on the eighth day, with symptoms of vomiting, distention and jaundice. Necropsy showed focal pneumonia, and extensive hemorrhage into the mesentery and retroperitoneal tissues.

Nonfatal postoperative complications of more or less severity developed in 438 cases, or 28 per cent.; some of these were trivial. In many cases the complications were multiple.

COMPLICATIONS

Sepsis.—In 158 cases the wounds failed to heal by first intention. In ninety-three cases the sepsis was trivial, consisting either of a stitch abscess, or more often a collection of serum which required draining. In many of the latter cases probably no infection was present; cultures were not made. In sixty-five cases there was frank pus in the wound, under 4 per cent. of the total number of wounds.

Of the seventy-five cases in which operation was performed with local anesthesia, sepsis developed in the wounds in thirteen cases, or 17 per cent.

Of the eighty-nine cases in which operation was performed with spinal anesthesia, there were nine septic wounds, or 10 per cent.

Hematoma.—In 112 cases the development of a hematoma was mentioned in the record; in twenty-seven of these cases it was stated to be slight. Marked and extensive ecchymosis was noted in two cases; in one of these it extended to the chest wall. In both cases it subsided spontaneously.

Subsequent orchidectomy became necessary in five cases, once on account of tuberculosis, and once on account of sloughing of a transplanted undescended testicle.

Complications in the Respiratory Tract.—These were of common occurrence, namely, 138 cases (9.2 per cent.) distributed as follows: Frank pneumonia was reported in seven cases, questionable pneumonia in one. Bronchitis was recorded in forty-eight cases; postoperative cough, with slight temperature, in forty-three; pulmonary infarct, two; pleurisy, one; colds, six, and tonsillitis, thirty.

Respiratory complications were by no means abolished by the use of spinal or local anesthesia; this probably was partly due to the fact that these forms of anesthesia were selected on account of chronic bronchitis or cough on the part of the patient. At any rate, respiratory complications occurred in twenty-five of the 170 in which spinal or local, or a combination of the two were used, nearly 15 per cent. Of these, one case of pneumonia and one fatal case of pulmonary embolism followed spinal, and one nonfatal pulmonary infarct local, anesthesia.

Miscellaneous.—There were many miscellaneous complications distributed as follows: otitis media, two; measles, one; cholangeitis, one; persistent hiccup, three; phlebitis, three; acidosis, two; pyelitis, one; ataxic paraplegia, one (this was not a case of spinal anesthesia). There were three cases with marked postoperative mental symptoms; one with delirium, and two with hallucinations and attempted suicide. The latter were both cases of spinal anesthesia.

END-RESULTS AND RECURRENCE

End-results were obtained through the routine follow up system of the hospital, no special effort being made to trace cases for this report. The hospital system consists of sending a letter to each patient, one year from date of discharge, requesting return to the hospital for examination; if this is impossible, report of condition by letter is requested.

As already stated, eight patients died in the hospital after operation. Data subsequent to discharge were obtained in 754 cases, just over 50 per cent., in which 140 patients reported by letter and 614 reported in person for physical examination. Eleven patients died of intercurrent disease during the year; 577 were reported unequivocally well, or cured, 38 per cent. of the total number operated on, and 76 per cent. of those whose subsequent histories are known. Ninety-nine patients are classed as relieved; fifty of these were cured of the hernia but complained of subjective symptoms more or less closely associated with the wound. The commonest complaint was of pain in the wound, especially when working or lifting. Two complained of persistent numbness in the inguinal region. Of the others in the relieved class, seventeen patients had no actual recurrence of hernia but a bulge in the region of the scar; eight had marked varicocele; five were cured of the hernia for which they were operated on,

but subsequently developed hernia elsewhere; three had atrophy of the testicle; two had keloid in scar; one had a persistent sinus; one developed adenocarcinoma of the sigmoid, and one was cured of hernia but had incontinence of urine. There were six cases of miscellaneous and unclassifiable complaints.

Fifty-nine patients had definite recurrence within the year; five of these had double recurrences; two are known to have recurred after the lapse of a year, making a total of sixty-six recurrences, or 3.7 per cent. of the total number of operations performed, and 8 + per cent. of the number of cases traced. There were six cases in which there was questionable recurrence. In two of these, relapse was claimed by the patient but could not be found by the examiner. If these six cases are counted as recurrences, the percentage is raised to 9 per cent. of the cases traced.

Of these recurrences, twenty-six, or 3.1 per cent., followed the Bassini operation, and thirty-four, or 4.4 per cent., the Ferguson.

In the sixty-seven cases of recurrence or questionable recurrence, postoperative sequelae were distributed as follows: cough, eleven cases; hematoma, nine, and sepsis, four.

In the 112 female cases there were only two recurrences.

Of the eighty-eight direct hernias there were recurrences noted in seven, or 7.9 per cent., or 15 per cent. of the direct hernia cases traced.

There were only two relapses out of seventy-five cases in which operation was performed with local anesthesia, 2.5 per cent. of recurrences; but it must be borne in mind that these were for the most part the less severe types of cases.

Simmons found in his study of hernia that recurrence practically always takes place within six months after operation. This is undoubtedly true for the great majority of cases, but like all generalizations is subject to exceptions. In two of our cases counted among the recurrences, the patients were reported well at the end of the first year. Others which we do not know about may also have relapsed since the expiration of the year.

SUMMARY AND CONCLUSIONS

In summing up this statistical study of inguinal hernia, I desire to emphasize the following points:

The results of operation are on the whole good, better than might be expected under the conditions. The operation, however, has a definite, though low, mortality rate, and should not be undertaken in the old and the infirm without good reason.

Postoperative cough, hematoma and sepsis are important factors in the incidence of recurrence, but the latter complication seems to play a lesser rôle than is generally assigned to it.

A strikingly large number of patients anatomically cured complain of pain, probably due to nerve traumatism.

General anesthesia is still best in the routine case. Local anesthesia is very satisfactory, and has a wide application in cases in which inhalation anesthesia is contraindicated, but carries a slightly greater risk of sepsis, and hence probably of recurrence too, although the latter conclusion is not borne out by our figures. Spinal anesthesia, on account of its greater danger and serious sequelae, should have little place in this operation.

Careful study of the results in this series of cases reaffirms the importance of the well recognized surgical principles of clean anatomic dissection, conservation of nerve supply, high closure of sac, securely accurate coaptation of tissues without constriction, and complete hemostasis, in the attainment of success in the operation for inguinal hernia.

ABSTRACT OF DISCUSSION

Dr. Henry O. Marcy, Boston: Tracing the development of the male during the late fetal period we note the extrusion of the testicle from the abdomen and the carrying with it of the peritoneal covering investing the vessels and vas deferens, making up the spermatic cord. Normally, the peritoneum is so closed in about the structures at the exit from the abdomen that only by pulling on the cord do we note the slight depression on the peritoneal surface, which lines the abdomen at this point. When the opening through the abdominal wall is imperfectly closed there results a more or less marked depression of the peritoneum described by Cloquet as normal anatomy and called by him the "infundibular process of the peritoneum." This defective closure of the internal ring is the usual cause of indirect hernia, although it may not occur until an advanced age. When normally developed the intra-abdominal pressure is at right angles to the canal and firmly closes it. The reconstruction of the canal to its normal size and obliquity is the sine qua non in the cure of hernia. In 1870 I operated on a large strangulated hernia and closed the wound with buried catgut sutures. The cure remained permanent. My first publication for the cure of hernia was in November, 1870. I instituted a long series of studies on animals to determine the rôle of buried animal sutures and published many articles on their advantages. I early emphasized the reconstruction of the inguinal canal, to its normal size and obliquely as safe, easy and permanent. The cure of hernia was established on a firm basis. In 1882 I first obtained tendons from the tail of the kangaroo and introduced their use as a suture material in every way superior to catgut. Corroboration of the principles and practice which I have so long advocated is now ample. All aseptic wounds closed with buried aseptic tendon sutures will remain aseptic and in well vitalized structures will be followed by primary union. The aseptic absorbable animal suture, preferably tendon, I consider my best contribution to surgery and the cure of hernia is dependent on their wise use. For a long period it has been a far too common custom to accredit to European writers much that belongs to our profession. To Bassini, honor is due for his excellent work, but in method, experience and publication he is antedated by a number of American surgeons. At last the cure of hernia should be called the "American method." With all the emphasis of an earnest conviction, I commend to every aseptic surgeon familiarization with the methods of wound closure by means of buried absorbable sutures, and not alone predict their early general adoption but that, in importance, they have the first place in the technic of modern aseptic wound treatment.

Dr. Daniel Nathan Eisendrath, Chicago: Hernias in hospitals are generally operated on by the house men and careful supervision is not given to a series of operations by one operator. I was very much struck with one point made: that was the frequency of sepsis in cases with local anesthesia. I have had that experience in my early cases, but since I have diluted the epinephrin I have not had experiences of that kind. I think we use epinephrin as a local anesthesia too strong and we have a reduction in the vitality of the tissues which favors intervention. Instead of using 4 or 5 drops of a 1:1,000 solution to the ounce I seldom use more than 1 drop. A second point to which I wish to call attention is some of the causes of recurrences. I think we are very apt to forget that there are in a large number of hernias a series of diverticular sacs. I mean the sacs which come out from the internal ring and form a double sac, i. e., a short trouser leg and a long trouser leg. Many of us were formerly satisfied with dissecting up and ligating the neck of the sac. We think we are ligating high up. When-

ever I find one having on the outer aspect a great deal of fat I put my finger in and see if there is a diverticulum, i. e., a pantaloon sac. Another cause is the comparative frequency of the concomitant occurrence of the direct and indirect hernia on the same side, parallel with each other and we are apt to overlook either the direct and the indirect. The next point is one Dr. Davis calls attention to, viz., the frequency of pain following hernia operations, and I have learned to be careful not to include any nerve fibers in my sutures. At the Michael Reese Hospital in Chicago, we uniformly do the Andrews operation of imbrication. It is the ideal operation in the type of cases of which we see so many, those with the very weak conjoined tendons. Our best result is in transplanting the cord invariably. I have not made an exception except in cases of undescended testes. The reason why this Andrews operation with the transplant of the cord is the ideal operation is that if you do not transplant the cord you have at the lower end a space that represents the pubic bone. You must make allowance for hard bony material with suture material. If you do transplant the cord you can work the many muscle tissues. I think that is the reason why a great many of these cases have recurrences, for the 34 per cent. of the total number of recurrences following the Ferguson operation.

DR. EDWARD W. LEE, New York: To what extent, if any, does Dr. Davis consider that traumatic hernias exist? Is there such a thing as traumatic hernia? Is there not a condition that predisposes to hernia that would let hernia be produced? I ask this question because in connection with a former paper the workman's compensation law and medico-legal cases this question is becoming one that somebody has got to decide very definitely to determine whether we actually have what may be called traumatic hernia.

DR. LINCOLN DAVIS, Boston: In regard to the question just asked: I do not know. I have no data on traumatic hernia. It is my belief that there is a predisposing factor present in all these cases, probably a pouch in the peritoneum which enables the bowel to come through suddenly, but I really have not gone into that question. I agree entirely with what Dr. Eisendrath said in regard to the double sac. I think that is a very important matter, and I have frequently found a direct hernia accompanying indirect and I think it is the direct hernia which is the problem to cure. Particularly in those direct hernias, I think Dr. Andrews' operation of imbrication and overlapping the layers is of great value. As to sepsis in local anesthesia, I think our figures are altogether too high and we have perhaps been a little slow in taking up local anesthesia. I think we are going to use it more and more. I am a little bit in doubt myself as to whether you can do quite as secure a closure under local as under general anesthesia. I think the infiltration of the tissues around the neck of the sac interferes with the most accurate and firm closure of the sac. We have not followed enough cases that have been done under local anesthesia to be convinced on that point. Dr. Marcy showed how the obliquity of the canal is one factor in preventing hernia and that is the condition that you wish to restore and it is for that reason that the direct hernia is so much more of a problem than the indirect. I found in these statistics which I have given you, that there was very little difference in the percentage of recurrence between the so-called Bassini and Ferguson operations. It was a little less than 1 per cent., I believe.

Loss of Weight of Musk.—Most of us remember that in our high school days the odor of musk furnished an illustration of matter in a finely divided molecular condition. We were taught that musk may give off odor indefinitely, meanwhile retaining its fragrance and weight unimpaired, or, at least, that any hypothetical loss of weight due to the subtraction of odoriferous particles was not susceptible of demonstration by the most delicate scales. According to the *Journal of the Franklin Institute*, however, this has been experimentally disproved. It is stated that musk, exposed for about seven months to a current of dry air, loses weight. When the loss of weight has ended, the musk is odorless, and its fragrance cannot be restored by exposure to damp air.

THE PREVENTION OF OBSTRUCTION OF THE PASSAGE OF GAS

FOLLOWING OPERATIONS ON THE COLON *

A. J. OCHSNER, M.D.
CHICAGO

A review of our work in surgical operations on the colon, as well as a review of the literature on this subject, impresses one most forcibly with the fact that, barring sepsis, which is now almost never encountered, and necrosis due to interference with the blood vessels or tension, both of which conditions can readily be avoided, the greatest danger to the patient comes from tension caused by obstruction to the passage of gas following colon operations. It seems, consequently, wise in performing any operation on the colon to plan the operation in such a manner as to make it impossible for a sufficient amount of gas to accumulate above the seat of the operation to endanger the success of the operation. If the surgeon has this fact definitely in view, it is usually not difficult to plan some provision which will be effective in preventing this source of danger. Several of these provisions have been fully described by a number of surgeons, but so far as I have been able to determine, the subject as applied to the entire colon has not received a due amount of consideration in surgical literature, and it seems worth while to undertake the task of presenting this subject at the present time together with diagrammatic drawings of the actual steps which we have employed in our clinic for this purpose.

Fig. 1.—Francis Reder operation: anastomosis between ileum and colon.

Fig. 2.—Excision of cecum: anastomosis between ileum and sigmoid flexure; *C*, drain extending into ileum.

Francis Reder has described an ingenious method for preventing pressure from gas in cases in which the cecum has been removed and in which the ileum is implanted into the transverse colon, as shown in Figure 1. The end of the ileum is passed out through a buttonhole in the abdominal wall about 10 cm. beyond the point at which the anastomosis between the closed end of the transverse colon and the end of the ileum is made. A tube is inserted into the free end of the ileum which will permit the gas to escape which may accumulate in the ileum, until perfect healing has taken place between the ileum and the transverse colon, and until the enterostomy opening functionates perfectly. When the drainage tube is removed, the remaining wound will heal spontaneously. If there is any difficulty about the healing of this wound, this can be stimulated by touching the lumen of the projecting intestine with the actual cautery.

In case the distance between the free ends of the ileum and the transverse colon is so great that an anastomosis cannot be accomplished without the use of a degree of tension which might endanger the vitality of the intestine, the same operation may be performed with equal safety by closing the free end

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of the transverse colon, as indicated in Figure 2, and making an anastomosis between the ileum and the lower portion of the sigmoid flexure and carrying a rubber drainage tube, 1.5 cm. in diameter, up through the rectum and through the enterostomy opening into the ileum and fastening it in position by means of a few fine silk sutures at the point of anastomosis, a method which was introduced by Sir Arbuthnot Lane in connection with his operation of short-circuiting for the relief of intestinal stasis.

In performing this operation for intestinal stasis, an additional step in the same direction, represented in Figure 3, may be added by leaving the cut end of the ileum which remains attached to the cecum open and passing this out through a buttonhole in the abdominal wall at a point opposite McBurney's point. This will enable the patient to irrigate the cecum freely in case there should later be backing up of fecal material into its lumen. This irrigation may be preceded by the injection through the artificial opening of glycerin and oil in order to soften the accumulation contained in the colon.

Fig. 3.—Anastomosis between ileum and sigmoid: stump of ileum placed through buttonhole in abdominal wall, with drainage tube extending through anastomosis opening.

Fig. 4.—Exclusion of colon: stump of ileum and sigmoid passed through stab wound in abdominal wall; anastomosis between ileum and sigmoid.

To the last step of this operation may be added an operation which was introduced by Dr. William J. Gillet of Toledo, Ohio, which is illustrated in Figure 4. The sigmoid flexure of the colon is severed near its lower end, and the proximal segment is passed through a buttonhole in the abdominal wall at a point marked *B* in Figure 4. The ileum is drained by means of a tube after the method described in connection with Figure 3. The tube is shown in position also in Figure 4. This operation makes it possible to leave in place the entire colon together with the omentum. The amount of drainage from the artificial opening connected with the colon is so slight that it does not materially inconvenience the patient, and still it affords the patient absolute protection against the accumulation of fecal material within the lumen of the excluded colon. This step reduces the danger of the exclusion of the colon enormously and increases the comfort of the patient very greatly, because the presence of the omentum will protect the small intestine against adhesions to the abdominal wall and against discomfort from changes of temperature.

In operations for intestinal stasis, this operation is very much simpler and safer than the operation which contemplates the removal of the entire colon, and it is in every way equally effective. It is not absolutely necessary to bring out the ileum through a buttonhole as shown in Figure 4, because, if there is an accumulation in the excluded colon, this can be removed by giving an enema through the opening *B*. In very stubborn cases of intestinal stasis, however, it seems that it is preferable to have both openings, so that thorough irrigation can be made use of.

In case a tumor or diverticulitis of the sigmoid has to be removed, leaving sufficient intestine to make it possible to reunite the severed ends, it is possible by following this method to establish entirely satisfactory conditions. The colostomy, *B*, Figure 4, can then be placed in front of the distal end of the remaining colon. In case the tumor or diverticulitis is located in the descending colon, the excluded colon may be drained through an opening as indicated at *B* (Fig. 5), or at any other point immediately in front of the free end of the remaining colon. In this case also the remaining portion of the sigmoid and rectum and the lower end of the ileum are drained by means of a rubber drainage tube 1.5 cm. in diameter, sutured in place as indicated by the dotted lines *C* in Figure 5. Here again the stump of the ileum, which remains attached to the cecum (Fig. 6 *A*), may be closed with sutures, leaving the lumen of the remaining portion of the colon open at the point *B* (Fig. 6).

In cases in which the tumor or diverticulitis is located in the sigmoid flexure, in which the size of the tumor and its location make it possible to remove the entire growth and still preserve a sufficient amount of the intestine to anastomose the upper and lower ends directly, the method which has been described by Gibson, and illustrated in Figure 7, furnishes perfect conditions. The operation consists in fastening a rubber drainage tube of proper size into the upper segment of the colon by means of sutures, as shown at *A*, in Figure 7, and then invaginating the upper segment *A* into the lower segment *B*, as indicated at *D*, in Figure 7, and then uniting the two ends by means of two rows of carefully applied sutures. The drainage tube *C* carries away all the secretions that come from segment *B* of the colon, and by nourishing the patient entirely for a week or ten days by means of proctoclysis through the tube *C*, making use of some predigested food, it is possible to prevent accumulation completely in the remaining portion of the colon.

The same principle works out with equal satisfaction if a tumor has to be removed from the ascending or transverse colon in cases in which the amount of intestine to be removed is not sufficient to make union between the upper and lower segments possible by means of direct anastomosis. In all of these cases, however, the upper segment of the colon has usually been overdistended because of the presence of the obstruction of the tumor or diverticulitis, and it is consequently sometimes difficult to invaginate the upper into the lower segment, unless the drainage tube which has been chosen, as shown in Figure 7 *C*, is sufficiently small to prevent overfilling the lumen of the lower segment. In all of these cases, the use of proctoclysis with normal salt solution, to which some concentrated, predigested food has been added, will greatly facilitate the keeping of the colon free from gas.

Fig. 5.—Anastomosis between ileum and sigmoid: stump of ileum passed through stab wound in abdominal wall; stump of transverse colon passed through stab wound in abdominal wall at *B*; excision of descending colon.

Fig. 6.—Same as Fig. 5 with stump of ileum sutured.

In any operation on the colon in which the surgeon is not absolutely certain that he can obtain free passage of gas past the seat of operation by employing one of the various methods that have just been

described, or some other equally efficient method, it is always wise to place a rubber drainage tube into the lumen of the cecum or ascending colon, as shown in Figure 8, and to pass this out through a stab wound in the abdominal wall directly in front of the point at which the intestine has been perforated for drainage. It is well to use for this purpose a drainage tube 1 cm. in diameter over which a second drainage tube has been pulled which is just large enough to grasp the inner drainage tube when this has been pulled inside of the lumen of the other tube by attaching a cord to the inner tube and threading this through the outer tube, and then, by putting the inner tube on a stretch, the outer tube can be drawn on this readily; and as soon as the inner tube is relaxed it will fit tightly within the grasp of the outer tube as shown in Figure 8 *A*. It is then possible to suture the outer tube to the colon at the point at which it has been perforated so as to prevent leakage, the sutures passing only through the outer tube and leaving the inner tube entirely free for drainage. The colon is then pulled up tightly against the peritoneum opposite the stab wound, through which the drainage tube is carried out, and a few fine sutures unite the colon to the peritoneum and the transversalis fascia, thus making leakage impossible. This tube may be utilized for making proctoclysis or introducing liquid food or oil into the colon.

Fig. 7.—Reuniting of colon after excision of tumor: *A*, attachment of colon to drainage tube, *C*; *B*, descending colon; *D*, telescoping of upper into lower segment.

Fig. 8.—Double drainage tube, *A*, applied to colon proximally to obstruction to prevent accumulation of gas.

This method is also most useful as a preliminary operation in cases in which there is an obstruction in the colon in a patient whose condition does not warrant an immediate operation. The patient can in the meantime be tided over the critical period and operated on when the bad effects of the acute obstruction have subsided. This operation is also especially useful in cases of complete obstruction of the colon in very old patients, such as have been described very fully by Schumacher, in which no mechanical obstruction can be demonstrated, but who nevertheless are suffering from a complete obstruction. It is also useful in cases of cancer of the rectum in which one desires to make an excision of the tumor and bring down the sigmoid into the wound in the perineum at the time of the final operation, although in these cases an inguinal colostomy will more completely divert the contents of the colon, leaving the portion to be operated on entirely free from fecal material. There can be no doubt that drainage is absolutely indicated in these cases, and that the methods which have been illustrated above are simple and efficient, I am convinced by having employed them in a very large number of cases, which the lack of space prevents me from reporting at this time.

ABSTRACT OF DISCUSSION

DR. W. D. HAGGARD, Nashville, Tenn.: Every surgeon knows the difficulties we had originally with the operations on the colon when we found that the Murphy button, until then our greatest dependence, was liable to be blown out by gas pressure. The Mickulicz operation has been so satisfactory because we could arrange for the immediate escape of gas if necessary. If gas does not pass over the extraventrated segment it is a simple matter to make a colostomy with a rubber catheter to allow gas to escape. The objection to the first operation diagrammed here is the possibility of fistula from the small intestine. To avoid this in an enterocolostomy it is advisable to leave the wound partly open down to the fascia and pack with gauze. The anastomosed area can be sutured gently to the abdominal wall. In a day or two, if the gas does not pass out, one can easily spread open a portion of the anastomosis with blunt scissors. The great majority of cases will not need this, but when it is needed it can be employed easily and simply. If no vent for gas is found necessary, there is no fistula left to deal with later. The utilization of the stomach, as illustrated in the drawing, passing through the rectum and through the opening into the small intestine is a real life saving procedure. The same can be said of the ultimate effect of the anastomosis of the small intestine into the sigmoid for real disease, but not for stasis because we do not know exactly what the trouble is, and neither do the intestines. Another useful procedure is the utilization of the appendix, as described by Mayo, of bringing it out on the surface and cutting it off flush with the skin and inserting a catheter for the escape of gas.

DR. CHARLES A. L. REED, Cincinnati: The operation described in Figure 1 is very interesting. I have accomplished the same purpose by making an end to side anastomosis and folding the end of the ileum into the side of the stump of the colon, then fixing the open end of the colon in the wound. In Figure 2 the only objection to leaving the upper end of the colon open is the occurrence of retroperistalsis with discharge of more than gas. After a while, however, it can be closed, and in the majority of instances, it will close itself. The ileocecostomy, as indicated by Dr. Ochsner, is an operation which I have practically abandoned because the reflux into the colon defeats the purpose of the operation. I cannot agree with Dr. Haggard that the presence of a stomach tube through the rectum and cecum into the small intestine is a life saving procedure which should be a source of comfort to the surgeon. I have found that the procedure sometimes causes angulation of the small intestine, sinks in like a lead pencil and the ileum angulates over it in a dangerous way. If any tube be inserted it should not be stiff, but a very soft flexible or rubber tube. These various other expedients, as they have been presented, simply show that in dealing with the intestinal problem, you have a large range of liberty, a large number of resources, and, given the mastery of the principles of intestinal surgery, the details will be determined by the case in hand at the moment of operation. The real surgeon never does any particular operation; he operates.

DR. A. J. OCHSNER, Chicago: The suggestions that have been made are very good. I have found no difficulty from leaving the ileum open, because the piece of ileum has been of sufficient length to close immediately on pulling out the drainage tube, which is not shown as being present in the drawing because I feared it might obscure the idea of placing the ileum in the particular position shown. I have used the Murphy button many times in making the anastomosis between the ileum and the colon, but I have had bad luck in two cases which I would not have had if the colon had been left open, which, of course, provides safety against the accumulation of gas and at the same time enables one to remove the button if it makes trouble.

Research.—The university is the natural home for research. The development of research institutes, except of those that have been built up around a great genius, and during the period of the active life of such a man, is apt, in the long run, to be more of a menace than help to the work of investigation. In a way the establishment of these institutes is a measure of university inefficiency. They mean that the universities have failed to rise to their full possibilities as centers of mental activity.—R. L. Wilbur.

THE SUPERIORITY OF THE RIGHT SIDE ANUS

IN THE HANDLING OF PARTIAL AND COMPLETE OBSTRUCTION OF THE LOWER COLON AND SIGMOID IN CASES UNSUITED FOR RADICAL OPERATION *

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Partial and complete obstructions are frequently encountered resulting from neoplasms, both malignant and benign, of the lower colon and rectum. The diagnosis of obstructions of this type can readily be made, the majority of them giving a history of chronic constipation with recurrent attacks of partial obstruction. The malignant types almost invariably present a history of bleeding and sloughing prior to complete obstruction.

When a patient is admitted to a hospital giving a history of acute obstruction of probably two or three days' duration, with stercoraceous vomiting and profound toxemia, it is not possible, nor is it necessary, to make a refined diagnosis of the exact character of lesion in the rectum or colon which is responsible for the obstruction, or whether it is due to intra-intestinal or extra-intestinal pathology.

The question that confronts the surgeon is how he can quickly and safely relieve the patient of the immediate cause of his illness, and in doing this, take fully into consideration the possibility of subsequent radical work. In a large majority of such cases it will be found after the acute condition has been relieved that they are inoperable from a radical standpoint. However, in a certain number of cases, it will be found that when the patient reacts from the acute condition, radical work can be done. In a series of six cases of acute obstruction of this type the writer has been able, by means of an ileal anus on the right side and exclusion of the large bowel, to relieve without mortality, these six acutely obstructed patients.

The right side anus has been chosen by the writer for the following reasons:

1. It can be rapidly made.
2. It admits of immediate and proper drainage of the distended bowel above the obstruction.
3. It excludes completely the large bowel, and we have found that as soon as the fecal current is turned from the large bowel, partial relief of the obstruction in the excluded bowel follows in a very short time; irrigations through the tube passed through the ileocecal valve and the use of the rectal tube will result in complete evacuation of the contents of the large bowel.
4. Should it become necessary to reestablish the continuity of the bowel, this can be done with the greatest possible ease. Whereas, if a left side colostomy had been done the colostomy would have relieved the acute condition, but in the event that subsequent work became necessary, the difficulties of restoring bowel continuity would stand out in marked contrast to the ease with which this can be accomplished when the anus is on the right side.

In one of the writer's cases the obstruction was due to an old pelvic inflammation in which the sigmoid and rectum participated. In this case a radical operation was subsequently performed and the patient is now in excellent health.

The possessor of an artificial anus is not to be envied. It is, however, astonishing how little discomfort results from the anus on the right side. There is comparatively no odor to the discharge, and with a properly adjusted receptacle the patient can live in comparative comfort. While the anus on the left side can be more readily controlled, the odor from an anus of this type is most objectionable.

The technic of the operation is as follows: Prior to giving the anesthetic, the stomach is washed until the water comes back clear. Under ether or gas, incision is made through the outer border of the right rectus muscle. The cecum is located and the small bowel is pulled up, clamped and cut across two or three inches above the ileocecal valve. One half of a Murphy button is fitted in a good-sized rubber tube. This is inserted and purse-stringed in the proximal intestine. A tube of the same size is next inserted into the distal ileum and through the ileocecal valve. This is held in position by a purse-string. Both the proximal and distal ends of the intestine are brought out and fixed at the lower angle of the incision. The wound is closed in the usual manner. The protruding bowel and tubes are carefully surrounded by gauze, and the stomach is again washed out before the patient leaves the table. The tube through the ileocecal valve gives exit to the gas contained in the large bowel, whereas the tube in the proximal ileum drains the small bowel.

In the event that subsequent radical work becomes necessary, this can be done in a manner to meet conditions. If the original obstruction was due to extra-intestinal pathology, this pathology can be removed and the restoration of bowel continuity can be made by doing a lateral anastomosis or an end to side anastomosis of ileum to cecum. If resection of the colon becomes necessary, the fact that the large bowel has been excluded enables the operator to work on the left side under ideal conditions.

ABSTRACT OF DISCUSSION

DR. JEROME MORLEY LYNCH, New York: I am very glad to know that the profession is beginning to recognize the value of ileostomy in surgery. This operation is comparatively old. It was first performed twenty years ago by an Italian. Reference to it is scattered through the literature. At the time I first performed this operation, for a definite purpose, nearly four years ago, it was on one of my associates, Dr. Treby Lyon, who had a very severe infection of the bowel which quite incapacitated him. The results of our investigations in that case were published. We were fortunate in having a physician to experiment on as he became very much interested in the work. The contents of the ileum were examined at the Yale laboratories. The patient was taken to Wood's Hole and there Dr. Bradley investigated the enzymes from the lower ileum. Other experiments and observations were made, all of which are on record. The most important lesson from this case was that the patient with an ileostomy is just as comfortable, if not more so, as a patient with a colostomy. The patient has gained 40 pounds, is back in practice, and his condition does not interfere with his duties. He refuses the risk of having the ileostomy closed because of polyposis. I operated on the wife of a New York physician under novocain. This woman, who had been bedridden for a year, was able to take up her household duties within a short time after the ileostomy was performed, but most remarkable of all was the sudden and complete restoration of her mental faculties, which had been deranged for a year. Indeed, she had not known her family for more than three months prior to opera-

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tion. She was mentally clear in thirty-six hours. Dr. Draper and I have thought this sudden change suggested strongly a relationship of this toxemia to the nonbacterial form shown by us to occur after duodenal obstruction.

DR. J. SHELTON HORSLEY, Richmond, Va.: I recently had a case in which I believe the operation of Dr. Brown saved the patient's life and naturally I feel kindly toward it. The patient had multiple papillomas of the colon which had become ulcerated and were discharging blood and mucus. Under the Brown operation he picked up wonderfully, though he is not yet well. Dr. Brown says he uses the lower stump of the ileum, but the abstract of his paper in the program refers to the cecum as the point at which he inserts the tube for irrigation of the colon. I think the ileum has many advantages: First, the ileocecal valve prevents the back flow from the cecum. Second, if later the fecal current is to be reestablished through the colon it can be done through the distal stump of the ileum if 6 or 8 inches of it are left, and so the beneficial effect of the ileocecal valve in preventing the flora of the large bowel from having free access to the ileum will be maintained. If the ileum is cut across close to the cecum and the cecum opened it would be necessary in reestablishing the fecal current to anastomose the ileum directly to the cecum or colon.

DR. JOHN YOUNG BROWN, St. Louis: We insert the tube in the distal gut and through the ileocecal valve. It is retained by a purse-string. In the proximal bowel, half of a Murphy button is fastened into the rubber tube. This is inserted after the bowel has been drained. The button is simply used to retain the tube in the proximal gut. One of the most astonishing things following this simple operation is the rapidity with which the excluded large bowel clears up. By the use of the rectal tube and irrigations through the distal tube, the excluded bowel can be cleansed thoroughly in a very short while. In regard to accurate diagnosis in obstructive lesions of the sigmoid, colon and rectum, this is made with great difficulty. The same conditions present themselves in this locality that are found in the upper abdominal tract. Yesterday Dr. Crile reported three or four cases of pyloric obstruction in which, at the time of operation, with the pathology in his hand, a diagnosis of malignancy was made. Following gastro-enterostomy these cases cleared up, proving conclusively that there existed no malignancy. The same thing we find in the lower colon. The high mortality in intestinal obstruction is due to three causes: First, late operations; second, too much surgery, and third, improper treatment prior to operation and the bad handling of these cases after operation.

LIPECTOMY AND UMBILICAL HERNIA*

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The fact that umbilical hernia is a dangerous abdominal condition, if allowed to exist without an attempt at relief, is sufficient reason for calling attention to this defect of anatomy. The radical treatment by the overlapping, or Mayo method, is so well known that it seems almost superfluous to mention it, but it is valuable enough to stand repetition.

After birth there are several changes that take place in the closing of the umbilicus. Bickham says:

1. Contracture and shrinking of the umbilical ring, dividing by its closure the umbilical vessels running through the ring; 2. Clotting of the vessel contents, proliferation of connective tissue, and contraction of the muscle fiber of the vessels, as a result of this, a firm fibrous scar is thus formed at the site of the umbilicus.

We can easily understand that the scar tissue may remain weak for some time, and also may be subjected to strain, and later give rise to hernia, which usually comes by way of the umbilical ring, or may even come through the abdominal wall in the vicinity of the ring. Women are more subject to this hernia than men, the proportion being about twelve to one. The relaxation of their abdominal muscles, especially distention due to pregnancy, tends toward this condition. These hernias often reach a very large size, and may contain omentum, stomach and large intestine. Usually it contains the former, and when of long standing has numerous pockets or sacs; is often irreducible and painful, and always a source of danger from strangulation. I had one case in which there was a complete diastasis of the recti muscles. There was an enormous mass hanging down, consisting of intestines, omentum and a distended gallbladder. The trouble began after pregnancy, and was given no attention till after the third child was born, when the extreme protrusion, discomfort and pain caused the patient to seek aid. Belts and pads were used in vain, and she finally came for operation. The adherent structures were separated with difficulty, the gallbladder was opened and a large number of stones removed. The gallbladder was closed without drainage (at present I would do a cholecystectomy) and gave no more trouble. The diastasis was closed by overlapping the fascia, and a continuous Cushing mattress suture was used. The patient made a good recovery and had no sign of recurrence after ten months.

Before the advent of the overlapping method in ventral hernias, the treatment of these conditions, especially when of large size, was very unsatisfactory and often meant a recurrence within a very short time. When muscle was used it formed a weak point of resistance to abdominal pressure, and we know that fascia is essential for support in these cases, for the aponeurotic structures are very strong, and by the overlapping we have a splendid plane of resistance. The technic is too well known to need any description before this section.

It is in connection with umbilical hernias and pendulous abdomens that I wish to dwell on the subject of lipectomy, or excision of fat from the abdominal wall. Kelly in 1910 put the operation on a firm basis, though Maylard, Schultz, and Meinhold had previously reported cases in which sections of fat were deliberately removed to restore contour and comfort to obese women, whose abdomens were large and whose fat was the cause of much discomfort. Lipectomy is a very beneficial procedure in nearly all indicated cases. We all know that when fat becomes excessive and fails to perform its functions it becomes a nuisance, and a burden to its owner. Fat has, among its uses, the preservation of structure and the aiding of beauty by rounding out or helping the symmetry of the body. An extra amount renders the usual activities of life a burden when exercise is needed, enjoyed or demanded. If sedentary habits are aided by the possession of too much fat, the vital organs are more or less affected in their power of metabolic change and the individual usually eats heartily with a continued increase in weight. When the fat is distributed evenly, we can only suggest diet, proper hygiene and exercise. Such patients need the care of a physician, and are of little general interest, for they usually pay little heed to the advice of the doctor, are often discouraged by slow improvement and become users of patent remedies, of whose virtues they read in skilful advertisements, and thus injure their systems by powerful, injurious con-

* From the State Hospital, Hazleton, Pa.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

coctions. Another class is different; here we have large areas of fat that can be removed, and give relief in most instances. Let us consider the accumulation of adipose tissue on the abdomen, as seen so constantly associated with umbilical hernia. Exercise is seldom taken in any sort of proper manner, sedentary habits lead to the usual hepatic troubles, to constipation, and more or less cardiac lesions. Hernia may or may not be present. The woman with a pendulous abdomen frequently wears a so-called form-fitting, or stomach-lifting, corset, in an effort to mold the form into a more pleasing appearance; and again these women are prone to eczema, or to chafing in the folds of fat lying in each groin. These individuals can be relieved of some of this surplus, and the folds of fat removed from the lower abdomen in sufficient amount to produce comfort and obliterate the soreness, or chafing. The operation, whether done deliberately for this purpose, or during the course of operation for umbilical or ventral hernia, is easy to carry out, and requires only careful attention to detail, such as hemostasis, careful apposition, and the provision for drainage at each end of the large incision, as there is oozing of serum and fatty débris for several days. If the abdomen is seized above and below, we find a large amount of tissue can be raised between the hands, which when brought together will give an idea of how much should be removed. The incision is elliptical, beginning well over on the side and extending to the corresponding point opposite, while its center below is a few inches above the pubis, and the upper above the umbilicus. It should go to the fascia, and then the whole amount of tissue in the area should be removed. The closure is easy and should be done with deep catgut sutures, reinforced with silkworm gut. We usually wipe out the wound with 3 per cent. iodin before closing, not forgetting to provide drainage, as already mentioned. The after-treatment, if hernia has been repaired, is rest in bed for from eighteen to twenty-five days; a semi-sitting posture is usually best. If lipectomy only is done, then a recumbent position for eight or ten days, followed by back-rest for a few more, and then out of bed. The diet is chiefly milk in small quantities and water with lemon juice. Patients frequently lose several pounds during convalescence, and if advice is followed as to diet and exercise, they will be greatly benefited for a long time. One case is reported in which 65 pounds was lost in a few weeks, including what was excised from the abdomen (Castle).

From one patient I removed nearly 16 pounds. She was a very stout woman who had an umbilical hernia. She made a good recovery, and four months later had lost a total of 30 pounds and felt better than she had for a long time. She certainly looked the part. There is little doubt but that lipectomy in properly selected cases is beneficial, and will give enough relief to last a long time, especially if postoperative instructions are followed regarding diet and exercise.

In connection with this subject there is a class of cases often trying to the surgeon, and in which a small lipectomy is most helpful. I refer to the difficulties of operating on stout patients in whom the thick wall of fat increases the distance from the surface to the parts to be reached, compelling the operator to work in a deep space with a wall of fat on each side. Some of these cases make accurate suturing very difficult by reason of this condition, and Howard Kelly[1] has made a valuable suggestion by which the difficulties are overcome in a large measure by an oval incision of skin and fat down to the internal abdominal wall, removing the section either transversely or in a vertical direction, corresponding to, or at right angles with, the deeper incision. This removes the thickness of wall down to the fascia, and from there into the abdominal cavity the depth is not great and the opening and closing is made comparatively easy, while final closure of skin is not difficult. This also reduces some fat, though of course much less than in a regular planned excision or lipectomy.

Kelly,[2] in speaking of these cases, says in part:

> I wish to emphasize the value of removing wedges of skin and fat in patients who are not troubled with obesity, but simply and solely for getting rid of part of the thickness of the abdominal wall and making the field of operation more accessible.

And as regards lipectomy itself he says:

> I do it regularly whenever I have a patient who has a heavy pendulous mass of fat on her abdomen, or in whom the mass of fat is sufficient to make a crease in the lower abdomen and stands in the way of her taking proper care of her person. I consider the operation one of sufficient importance to be done solely for the relief it offers in appropriate cases.

In bad cases of umbilical hernias a valuable modification of the Mayo operation is made by carrying the incision through the fascia on both sides all the way to, or beyond, the outer border of the rectus muscle. This gives a strong, lasting, lateral support and takes the strain off the middle operation at the weakest point of the tissue (Kelly). Wells[3] reports seven cases of umbilical hernia with lipectomy; one patient died from embolus on the seventh day. The latest statement of Dr. Kelly was in March, 1916, in which he says:

> I do lipectomy constantly, either in conjunction with abdominal operations or simply to relieve the patient of the pendulous load of fat. I have often seen the results several years afterwards; one recently of five years' duration, in which there is no recurrence, and the abdomen remains with a straight front and well supported.

W. L. Estes states that he frequently makes use of lipectomy, and especially the removal of a section, or wedge, to facilitate easier work in the deep structures.

Dr. John G. Clark[4] says that "where there is an excessive accumulation of fat in the anterior abdominal wall, and where it is giving a great deal of inconvenience, especially in association with a ventral hernia, we invariably take an oval wedge transversely out of the abdomen." Clark[4] further reports the case of a woman who weighed 340 pounds, short in stature, and whose abdominal wall reached below the knees when she was standing. She was unable to walk on account of this mass, blood pressure was 180 mm. of mercury in one arm, and 240 in the other. She insisted on operation, though she was a bad surgical risk. He removed a wedge weighing 32 pounds. She was toxic for a short time after operation, but ultimately recovered, and went home.

Dr. T. C. Cullen[5] reports a case of umbilical hernia in a woman, aged 35, weighing 464 pounds. The abdomen hung down to her knees, forcing her to keep off her feet as much as possible. She was becoming a semi-invalid, and insisted on having some relief. It was decided to do a lipectomy, as advocated by Kelly,

1. Kelly, Howard: Removal of a Skin Fat Wedge, Ann. Surg., liii, 364.

2. Kelly, Howard: Personal communication to the author.
3. Wells: Am. Jour. Surg., 1916, xxx, 107.
4. Clark, John G.: Personal communication to the author.
5. Cullen, T. C.: Diseases of the Umbilicus.

in connection with removal of the hernia. The size of the area removed, when measured, was 36 inches from side to side, and 19 inches from above downward. The omentum in the sac was so intimately blended with the walls that this portion was cut off and removed, together with sac and redundant tissue. The hernial opening was closed by the Mayo method, kangaroo tendon being used for mattress sutures. The abdominal wound was brought into apposition by silver wire and silkworm gut. Drainage was provided. The final result was excellent, and the abdominal incision contracted to 27 inches. Eight months later the patient was in excellent health. It is interesting to note that Cullen[5] describes seven separate conditions of disease or hernia of the umbilicus, namely:

1. Hernia into the umbilical cord.
2. Amniotic hernia.
3. Congenital ripping off of a hernial protrusion.
4. Small umbilical hernia at birth.
5. Serous umbilical hernia.
6. Umbilical hernia in the adult.
7. Cysts of the umbilicus.

Simmons[6] reports the end-results in seventy cases of umbilical hernia operated on in the Massachusetts General Hospital. He states that small hernias in children and thin adults may be cured by any operation that removes the sac and closes the defect in the wall.

Umbilical hernia in stout adults is difficult to cure, the Mayo operation giving the best results, and by other methods the percentage of recurrence is 46.4 and usually takes place in less than one year.

Our own patients whom we have been able to follow have shown recurrence in about 12 per cent. of cases, and these were in stout persons; but since the routine practice of lipectomy the cases having a return are fewer.

John H. Gibbon[7] of Philadelphia reports a case of lipectomy in a woman, 47 years of age, weighing 315 pounds. The section removed weighed 21 pounds, and the incision was 38 inches long. Six months later this patient came under the care of Dr. McCrea, and again weighed 315 pounds. Under medication and diet she was reduced to 265 pounds, and she has managed to keep it down and is quite comfortable. Gibbon further states that he has several times combined lipectomy with the operation for ventral hernia or for some intra-abdominal condition.

My experience has been derived from 103 cases of umbilical hernia, in fifty-seven of which some excess fat was removed, and in forty-six a regular lipectomy operation was done. There were eighty-nine cases with no mortality. In thirteen cases with strangulation there were four deaths. One other death occurred twenty-two days after operation; 22 pounds of fat were removed and the patient, a man weighing 325 pounds, did well till after the second week, when his kidneys began to fail and he gradually succumbed. This was the only fatality in the lipectomies, and it is possible that the four deaths recorded might have been prevented had the patients been brought to the hospital sooner; but they were late cases and given the only chance. The average amount of fat removed was from 5½ to 6 pounds. Dr. Gibbon's case shows the importance, as already mentioned, of careful diet and exercise following the removal of considerable fatty tissue, as otherwise the patient will be helped for only a short time.

6. Simmons: Boston Med. and Surg. Jour., March 9, 1916.
7. Gibbon, John H.: Personal communication to the author.

ABSTRACT OF DISCUSSION

DR. W. WAYNE BABCOCK, Philadelphia: In regard to deposits of fat in the anterior abdominal wall, which are so frequent, it is important to remember that fat is somewhat like glandular tissue and stores up excessive fat within its cells. When adipose tissue is excised it does not regenerate, and so, with removal of fat there is removed from the body in that particular zone the chances of fatty recurrence, and the completeness of the fatty removal indicates the degree of freedom from fat in that particular part of the patient's body thereafter. In the abdominal wall, as Dr. Lathrop has said, the best incision is a vertical one. The older transverse type is not as well adapted because in bringing the margins together there are developed at the flanks horn-like projections which are unsightly and must be removed to secure a good contour. The vertical incision may be so curved as to give the patient any shape which her particular type of body will permit. After the removal of the skin and fat with extensive undercutting there comes also the reconstruction or the reenforcement of the deeper layers of the anterior abdominal wall. The fat not only makes the patient unwieldy but by traction across the weakened anterior abdominal wall predisposes to hernia. Most careful reenforcement is sometimes insufficient because the tissues have become stretched and the muscles attenuated. In these cases other reenforcement is to be considered, and here we may consider a free transplant taken from the fascia lata or other fascia of the body, or what I have found more helpful, some alien substance. Of the alien substances, silver, in the form of filagree, has been suggested by Bartlett. It is of great value but has the rather unfortunate defect that as time goes on the silver strands tend to fragment and possibly cause pain. To overcome this, I have within the last two years laced the deep layers left weak after imbrication and suturing with a continuous lacing, as we lace a shoe, with fine silver chain such as is employed by jewelers. That having a caliber of about No. 2 catgut has a tensile strength of 13 or 14 pounds. The lacing can be done quickly with an ordinary needle. Sometimes after the reduction of, for instance, a very large scrotal hernia we find that the patient dies because the abdominal cavity has not become adapted to the sudden increase in tension. In one of my cases the tension resulted in cardiac failure the third day after the operation. In two cases the patient developed glycosuria which was accompanied by somnolence and symptoms of impending diabetic coma. Under large doses of alkalies both patients recovered, but the possibility of producing pancreatic diabetes from undue tension must be considered.

DR. H. O. MARCY, Boston: Horatio R. Storer of Boston did a great deal of excellent surgery. The first case of umbilical hernia operated on in Boston with recovery was by him in the early sixties. He was condemned by many and some said he should not be permitted to practice surgery. From that day to this there have been great changes. I wish to call your attention to a method of mine used many years ago in which instead of overlapping, I do what you might call flap splitting. I have never seen the abdominal wall give way when I have reconstructed the abdominal parietes in this way. Removal of fat is certainly a very interesting and profitable sequence to this. Most of these patients do have pendulous abdomens. I have gone one step farther; almost always one will find the omentum loaded with fat like leaf lard in the hog. This I have taken away in order to have room in the abdominal cavity for the retention and function of the abdominal organs. Having lost two patients from the greatly increased intra-abdominal pressure led me to study this all the more carefully, owing to the return of the contents of the hernial sac within the abdominal cavity. The lateral division of the abdominal wall brings the coapted surfaces into a very wide union. These are held in apposition by three layers of buried kangaroo tendon sutures.

DR. W. A. LATHROP, Hazleton, Pa.: I want to emphasize what Dr. Babcock said in reference to the importance of giving alkalies in cases where a large amount of fat is removed.

THE ACTION OF VARIOUS "FEMALE" REMEDIES ON THE EXCISED UTERUS OF THE GUINEA-PIG*

J. D. PILCHER, M.D.
W. R. DELZELL
AND
G. E. BURMAN
OMAHA

Among the drugs listed as unimportant, inactive or useless in the reports of the Council on Pharmacy and Chemistry of the American Medical Association are a number that have been reputed to possess certain "tonic" or "sedative" actions on the uterus. These drugs have never been studied pharmacologically; clinical observations on their usefulness are either entirely wanting or are inconclusive, and undoubtedly they would have fallen into disrepute long ago had they not been foisted on the medical profession in the form of a long list of proprietary preparations and on the public in the form of "patent" medicines.

These drugs, and specimens of the claims that have been made for some of them in medical literature or in proprietary medicine advertising, are as follows:

Black haw (*Viburnum prunifolium*): "sedative, antispasmodic, nervine and tonic . . . of value in all congested, inflamed and irritable conditions of the uterus, ovaries and adnexa." "Will certainly relieve dysmenorrhea."

Blue cohosh (*Caulophyllum thalictroides*): ". . . . quite an efficient remedy to increase the force of uterine contractions . . . of service in the treatment of spasmodic dysmenorrhea."

Cramp bark (*Viburnum opulus*): "A uterine tonic and sedative of surprising potency." ". . . highly beneficial in the cramps of disordered menstruation, in the convulsions of pregnancy, in spasmodic contraction of the bladder and in cramps and spasms in general . . . anti-abortive and alterative to the reproductive system."

Liferoot (*Senecio aureus*): "Regulates the functions of the uterus and allied organs, diminishing secretion when excessive or increasing it if scanty. It also exerts a tonic effect on the uterine adnexa, and is especially indicated in amenorrhea, menorrhagia and chlorosis."

Jamaica dogwood (*Ichthyomethia piscipula, Piscidia piscipula* or *Piscidia erythrina*): "Through its action on the muscular system it can supplement viburnum and neutralize hydrastis in spasmodic dysmenorrhea."

Pulsatilla (*Pulsatilla pratensis* or *Anemone pulsatilla*): "a curative in uterine colic and . . . a valuable remedy in inflammatory conditions of the uterus and ovaries . . . a valuable tonic stimulant to the uterine fibers."

St. Mary's thistle (*Silybum marianum, Mariana mariana, Carduus marianus*): ". . . there is no other remedy in the materia medica of equal value in the treatment of chronic uterine hemorrhage and melena, inasmuch as it not only checks the immediate flow, but by continued use remedies the causes on which it depends, regulating and restoring the natural portal circulation, and, where amenorrhea depends on such irregularity, it tends to restore the normal flow."

Skullcap (*Scutellaria lateriflora*): ". . . possesses tonic, nervine and antispasmodic properties in a high degree . . . of inestimable value in the treatment of amenorrhea, dysmenorrhea, menorrhagia and kindred disorders."

Unicorn root (*Aletris farinosa*): "Exerts a specific influence upon the uterus, imparting tonicity and vigor to that organ."

Valerian (*Valeriana officinalis*): "is antispasmodic and a gentle stimulant to the nervous and circulatory systems . . . is a valuable remedy in all forms of hysteria."

Wild yam (*Dioscorea villosa*): ". . . a powerful antispasmodic, relieving uterine pains, cramps, etc."

In addition, several drugs were examined for which few specific claims have been made, or none at all, but which are ingredients of various more or less extravagantly advertised "patent" or proprietary medicines. These are: blessed thistle (*Cnicus benedictus* or *Carduus benedictus*), false unicorn (*Chamaelirium luteum* or *Helonias dioica*), lady's-slipper (*Cypripedium pubescens*), motherwort (*Leonurus cardiaca*), passion flower (*Passiflora incarnata*) and squaw vine (*Mitchella repens*). Mountain maple (*Acer spicatum*) was examined because it is said to be substituted for cramp bark (*Viburnum opulus*), which is believed not to have been on the American market for a number of years. As a control chestnut bark (*Castanea dentata*), a drug that has no uterine action, was employed.

This paper is a summary of a preliminary pharmacologic investigation of these drugs on the isolated uterus of the guinea-pig. The guinea-pig was chosen, as the uterus of this animal is usually more active under experimental conditions than that of other animals.

METHODS

A strip of the uterus was attached to a muscle lever and immersed in a bath of well oxygenated Tyrode's fluid[1] and the contractions recorded on smoked paper. On immersion in the bath there is usually a latent period of from a quarter of an hour to an hour before the movements are initiated or become regular; frequently the strips do not become active. After the registration of a satisfactory control tracing, the drugs were added to the bath in the proportion of 1 or 2 parts of the drug to 1,000 of the bath.

The strip remained in the bath until there was evidence either of the activity or inactivity of the added drug. Before a drug was deemed inactive it was left in contact with the strip of uterus for about fifteen minutes, as a rule, but occasionally for an hour or even longer, before renewing the bath and adding a fresh drug. The active preparations, as a rule, caused a prompt change in the character of the tracing; usually they were allowed to act but a short time as it was found that prolonged action frequently destroyed the usefulness of the strips for other experiments. A few experiments were always made to show that the action of a given drug was persistent. The fluidextracts and

* From the Pharmacological Laboratory of the University of Nebraska, College of Medicine.
* This investigation was undertaken at the suggestion of the Therapeutic Research Committee of the American Medical Association; the Association assumed part of the expense of the investigation.
* The detailed results and tracings will appear elsewhere.

1. Tyrode's fluid contains the salts of the blood in isotonic quantities.

the freshly prepared infusions of each drug were employed.[2]

As the fluidextracts were alcoholic solutions, control experiments were made with equal amounts of alcohol, and these showed that the alcohol of the extract had no effect on the muscular strips in the concentrations used in these experiments; the fluidextracts, evaporated at about 45 C. (113 F.), manifested the same action as the fluidextracts themselves.

The interpretation of the activity of a drug was judged by the change in the character of the muscular contraction. Theoretically the action could be manifested in three ways, on the amplitude and rate of the excursion or on the muscular tone. Practically it was found that, with but one exception, the size of the excursion was the feature affected; the action on the rate was always secondary to this. In but a single instance was the tone primarily affected; secondarily, a number of drugs slightly decreased the muscular tone. When the contractions were altered the tendency was always toward a reduction in the amplitude of the excursions; in no instance did a drug appreciably increase the excursions.

RESULTS

The active drugs.—The following drugs lessened the amplitude of the excursions or, in the stronger solutions, caused their complete cessation: Unicorn root (*Aletris farinosa*), pulsatilla (*Pulsatilla pratensis*), Jamaica dogwood (*Ichthyomethia piscipula*), and figwort (*Scrophularia nodosa*); somewhat less active were valerian (*Valeriana officinalis*) and lady's-slipper (*Cypripedium pubescens*); the drugs possessing very weak actions were wild yam (*Dioscorea villosa*), life root (*Senecio aureus*) and skullcap (*Scutellaria lateriflora*). The infusions of figwort, Jamaica dogwood and lady's-slipper were active after the manner of the alcoholic preparations, but to a much lesser degree. The infusion of motherwort possessed very insignificant depressant properties, although the fluidextract was inactive. Blue cohosh (*Caulophyllum thalictroides*), even in the 1:2,000 solution, very promptly put the strips of uterus practically into a state of tonic contraction or tetanus. The action was very persistent and the normal muscular state was not resumed after the strips were placed in fresh Tyrode's solution. The infusion was quite inactive.

The inactive drugs.—The following were quite inactive or inert, both the fluidextract and the infusion: black haw (*Viburnum prunifolium*) the bark of both root and stem, cramp bark (*Viburnum opulus*), squaw vine (*Mitchella repens*), chestnut bark (*Castanea dentata*), false unicorn (*Chamaelirium luteum*), passion flower (*Passiflora incarnata*), blessed thistle (*Cnicus benedictus*), St. Mary's thistle (*Silybum marianum* or *Carduus marianus*) and motherwort (*Leonurus cardiaca*); sodium valerianate was also inactive in solutions up to 1:1,000. The strips were allowed to remain in the solutions of these drugs in concentration up to 1:500 for some time (many of them for an hour) without evidence that the drugs changed the character of the tracings in any way. Control experiments showed that the strips were capable of being depressed or stimulated by these drugs so that there can be no question of their complete inactivity.

COMMENT ON RESULTS

The question arises, How far can the results of this work on the excised strips of uterus muscle be compared to the action in the intact animal and in the human uterus? There are no experimental data on the point at present, but judging by analogy to other drugs, notably pituitary extract and ergot, it may with perfect safety be assumed that the action would be the same on the uterus in situ as on the excised strips of uterus, provided the drug reached the uterus in a similar concentration; this refers to the action on the muscle directly and on the nerve endings; any action on the local circulation can be dismissed, as no known drug acts specifically on the circulation of any organ. The action on the human uterus would be the same, as a similar physiology implies a similar pharmacology. It is improbable, however, that the concentrations of the drug used in this work could be attained in the body in whatever way they were administered. From preliminary work on another form of smooth muscle (intestine) it seems highly probable that these drugs act in no sense specifically on the uterus but on smooth muscle in general, so that, even granted that they could be taken in sufficient dosage to exhibit their characteristic action on the uterus, it is more than probable that the action on the other forms of smooth muscle (intestine, blood vessels, etc.) would overbalance any favorable effect there might be on the uterus.

If the term "uterine tonic" implies a drug that increases the muscular tone of the uterus, with one possible exception (blue cohosh), the members of the group examined can be said to be absolutely void of any such action, for none of them increased the tone at all and many of them somewhat lessened the tone secondarily, although the majority were quite void of any action. Without question, then, the entire list of "uterine tonics," whose supposed activity depends on the presence of the drugs here reported, can be emphatically stated to be inactive; those containing blue cohosh may be a possible exception to the statement but, in view of the difference between the concentration likely to be attained in the body and that used in the experiment, it is highly improbable that this drug could manifest the same action in the body that it did on the excised uterine tissue. It is rather striking that some of the proprietary or "patent" nostrums are said to contain both cohosh and one or more of the depressant drugs; it is hardly worth while entering into a discussion of the result of mixing two or more preparations of this class with directly opposite physiologic actions.

The work shows further that the domestic use of teas made from these drugs, for any supposed action on the uterus, is quite irrational, for water either extracts but a very small part of any of the active principles of the drugs or, in the majority of them,

2. All the preparations used were furnished by the American Medical Association Chemical Laboratory. The crude drugs were identified and found true to name as follows, by Prof. Henry Kraemer: blue cohosh (*Caulophyllum thalictroides*), false unicorn (*Chamaelirium luteum*), figwort (*Scrophularia nodosa* or *marylandica*), Jamaica dogwood (*Ichthyomethia piscipula*), lady's-slipper (*Cypripedium pubescens*), life root (*Senecio aureus*), motherwort (*Leonurus cardiaca*), mountain maple (*Acer spicatum*), passion flower (*Passiflora incarnata*), pulsatilla (*Pulsatilla pratensis*), skullcap (*Scutellaria lateriflora*), squaw vine (*Mitchella repens*), unicorn root (*Aletris farinosa*), valerian (*Valeriana officinalis*); by Prof. E. N. Gathercoal: black haw (*Viburnum prunifolium*), blessed thistle (*Cnicus benedictus*), and cramp bark (*Viburnum opulus*). A fluidextract was made by L. E. Warren of the American Medical Association Chemical Laboratory from each one of the following named authentic drugs: black haw (*Viburnum prunifolium*), bark of root; black haw, bark of stem; cramp bark (*Viburnum opulus*), and mountain maple (*Acer spicatum*); all other fluidextracts were made by different firms and their identity was not established, but, as the actions of two prenarations of each drug was about the same, their identity is probably authentic.

none at all. The principles are probably of a resinous nature and therefore practically insoluble in water.

CONCLUSION

Not only are the drugs in this list unimportant, as they have been styled; they are also practically worthless. Their use is harmful as well as futile, since it tends to perpetuate therapeutic fallacies.

OPERATIVE TREATMENT FOR THREATENED GANGRENE OF THE FOOT

WITH SPECIAL REFERENCE TO REVERSAL OF THE CIRCULATION *

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Threatened or slow gangrene of the foot follows a diminution of the caliber of the blood vessels supplying the foot. This results from a disease which may be clearly systemic or which may manifest itself chiefly in the blood vessels of the lower extremities. Sudden occlusions, as by emboli, with consequent rapid gangrene, do not come under the title of this paper.

The diseases of the vessels which cause slow or threatened gangrene of the foot may be divided into four groups:

1. *Arteriosclerosis.*—This condition is caused by toxic products which may come from deranged metabolism, as in nephritis; from infectious diseases, as syphilis, or from general wear and tear, as in old age. It is found chiefly in the arteries. There is excessive thickening of the media or intima or of both.

2. *Intermittent Claudication.*—This disease was described by Charcot and occurs in the legs. It consists of a vasoconstrictor spasm in arteries that are already affected with arteriosclerosis. The spasm appears on exertion, when the tissues require an increase of blood, and causes painful cramps. During the cramps the legs are cold and pale or mottled. After rest the cramps may disappear, but pulsation of the tibial arteries is feeble or lacking.

3. *Raynaud's Disease.*—In this disease there is no organic pathologic condition, but the constriction of vessels is due to intense spasm of the small arterioles or venules just before they become capillaries. It may be of three types, a spasm of the arterioles alone, causing a bluish color; of the venules alone, making the affected parts red, or of both the arterioles and venules, causing a blanching. Any of these types may result in gangrene.

4. *Thrombo-Angiitis Obliterans.*—Leo Buerger of New York has made a careful study of this disease, which was formerly rather vaguely classified and was referred to clinically under various terms. The German writers considered it an obliterating endarteritis. Buerger has shown that thrombo-angiitis obliterans has many distinctive characteristics and that the occlusion of the vessels is not caused by a thickening of the intima, but by a thrombosis.[1] This disease occurs chiefly in the blood vessels of the lower extremity, though occasionally the upper extremity is affected. It begins, not in the arterioles or in the smallest arteries, but in vessels of medium size, and then ascends. In the foot it is usual, according to Buerger, for the dorsalis pedis and plantar arteries to be involved first, and later the disease ascends to the tibials and sometimes to the popliteal artery. The deep veins are affected in about 40 per cent. of the cases. Occasionally a segment of apparently healthy blood vessel is found between diseased portions of the same vessel. Buerger has demonstrated that in the first stage of the disease the affected vessel shows signs of inflammatory change, and he seems to have proved quite clearly that thrombo-angiitis obliterans is due to some microbe or to a toxic material which, however, has not yet been isolated.

In the first stage there is a round cell infiltration of the media and adventitia of the vessel and usually of the tissue around the vessel. Soon after this, and sometimes almost accompanying it, a red clot forms in the vessel and practically always obliterates it. Then small foci appear in the clot, which Buerger refers to as "miliary abscesses." They are collections of pus cells and leukocytes that form in the thrombus, usually around its periphery. The leukocytes apparently come in from the media. Angioblasts then grow into the clot and the ordinary process of organization and canalization occurs in the thrombus as elsewhere in the body except in these small foci. Here the angioblasts seem to lose their power of producing blood vessels and terminate around the edge of these pus foci as endothelial cells or penetrate the foci and either fray out or produce giant cells. A little later the giant cells arrange themselves around the periphery of the focus, the leukocytes disintegrate, and the resemblance to a tubercle is marked. After this the degenerated products are absorbed and the focus becomes connective tissue. Then all traces of acute inflammatory process disappear. The leukocytes and wandering cells in the media and adventitia and perivascular tissue disappear and the obliterated or canalized vessel is left as the final product.

This is the life history of the disease as traced by Buerger. It begins with every evidence of acute inflammatory reaction, is followed by an apparently specific process in the tubercle-like formation, and ends in organization and canalization of the thrombus. The disease is sometimes extensive and often ends abruptly in a clot which projects into the lumen of a vessel that appears to be normal. It may progress in stages, so that, while the vessels in the foot may show the old type of organized and canalized thrombus, farther up in the leg the tubercle stage may be seen, and still farther in the upper tibials the acute inflammatory reaction with a red clot, pus foci, and infiltration of the blood vessel wall and perivascular tissue may appear.

Thrombo-angiitis obliterans occurs between the ages of 20 and 35 and rarely after 40. It is found chiefly in males. Most of the patients are Russian Jews, or descendants of Russian Jews, or Jews from the country around Poland, the eastern part of Austria-Hungary or eastern Germany. Koga, however, has found this disease among the Japanese, and the patient whose case is reported in this paper had no Jewish ancestry and was born and raised in Virginia. The symptoms depend largely on the extent of the disease. Buerger has found that the superficial veins are often involved and may give no symptoms in themselves. There may be vasomotor symptoms such as flushing of the leg or foot when it hangs down, followed by blanching when it is elevated. Ordinarily the foot is cold and of a dark bluish or purplish color. Often pain in

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Buerger: Am. Jour. Med. Sc., October, 1908, p. 567; ibid., February, 1915, p. 210; Surg., Gynec. and Obst., November, 1914, p. 582; Jour. Med. Research, November, 1914, p. 181; Arch. Diagnosis, October, 1915.

the calf of the leg is severe and is more marked after exertion. These symptoms may be attributed partly to the mechanical occlusion of the vessels which produces ischemia, and partly to the fact that nerves are sometimes pressed on or irritated by the scar tissue which may result from the inflammatory reaction in the perivascular tissues.

The treatment of threatened gangrene should embrace such constitutional measures as may be indicated. When the arterial disease is due to diabetes, the Allen treatment should be instituted. If from other causes, such as syphilis, appropriate remedies should be given. Locally, conservative measures as hot applications or hot air, particularly in cases of diabetic gangrene, sometimes accomplish much. De Witt Stetten[2] reports excellent results in a series of cases of diabetic gangrene which he treated along these lines, never doing a radical amputation, but merely cutting away the gangrenous tissues at the line of demarcation.

For the treatment of gangrene due to thromboangiitis obliterans, a number of remedies have been suggested, some of them quite different. Thus, Ochsner[3] believes that his patients with this disease ate too much salted meat, while Koga[4] recommends hypodermoclysis with saline or Ringer's solution as a remedy. Willy Meyer[5] has obtained excellent results by the latter treatment, and thinks that the benefit is due to the fact that the solution in some way alters the quality of the blood. He has used it in more than thirty patients, and gives twenty-four injections in each case. Five hundred c.c. of Ringer's solution are given each time. Four regions of the body that take up the solution most readily are chosen and the solution is injected in these regions in rotation. The injections are given every day or every second or third day, according to the amount of discomfort that is caused.

Fig. 1.—Foot before operation. The discoloration started at the stump of the great toe.

Dr. L. L. McArthur[6] reports six cases of thromboangiitis obliterans which he has recently treated with hypodermoclysis of Locke's or Ringer's solution with gratifying results. Dr. A. J. Ochsner,[7] in discussing this group of cases, has found that patients suffering from this disease are promptly relieved from pain after an injection of Ringer's solution.

Since in all of these diseases the arteries or arterioles are chiefly affected, it has been proposed, largely as a result of the experiments of Carrel and Guthrie,[8] that the veins be utilized to carry the nutritive arterial blood to the tissues. To accomplish this, the arterial current has been switched into a vein by means either of an end-to-end or a lateral anastomosis between the femoral artery and the femoral vein. This operation has been performed by a number of excellent surgeons, Wieting having probably done more than any one else to bring it into prominence.

In order to determine whether arterial blood, when switched into the veins, really reached the tissues for which it was intended, I undertook a series of experiments on dogs about three years ago. The femoral artery and femoral vein were divided about 2 inches below Poupart's ligament, and the central end of the artery was united to the distal end of the vein end to end by means of a double mattress suture, the technic of which has been described elsewhere.[9] The animals were killed at periods varying from half an hour to forty-six days after operation. A cinnabar mass was injected into the circulation just above the anastomosis. A roentgenogram was taken and then a bismuth mass was injected into the abdominal aorta, after which another roentgenogram was taken. The specimens were dissected by the late Dr. R. H. Whitehead, professor of anatomy at the University of Virginia, who found that the dissections corresponded quite closely to the Roentgen-ray findings. The report[10] of these experiments and the report[11] of an experiment on another animal which was similarly injected and killed after sixty-nine days have been published.

All of these experiments show that in no instance did the injection material in the reversed circulation reach the foot; in most cases it went only a short distance below the knee. In all the animals that lived longer than a few days, the injected mass was quickly transferred by large anastomosing veins to the iliac veins and through them to the vena cava. The arterial blood must have followed the same course as the injected fluid, which, in the reversed circulation, rarely went lower than midway between the knee and the ankle. De Witt Stetten[12] arrives at the same conclusion, namely, that arterial blood in a reversed circulation goes but a short distance below the point of anastomosis and never reaches the tissue which most needs the nutrition. His deductions are from experiments on limbs that were amputated because of slow gangrene.

After the arterial blood is switched into the veins, the large valves in the veins are quickly broken down,

2. Stetten, De Witt: The Conservative Treatment of Diabetic Gangrene of the Lower Extremity, THE JOURNAL A. M. A., April 12, 1913, p. 1126.
3. Ochsner: Surg., Gynec. and Obst., October, 1915, p. 536.
4. Koga: Deutsch. Ztschr. f. Chir., CXXI, 371.
5. Meyer, Willy: Ann. Surg., March, 1916, p. 292.
6. McArthur, L. L.: Surg., Gynec. and Obst., May, 1916, p. 625.
7. Ochsner, A. J.: Surg., Gynec. and Obst., May, 1916, p. 626.
8. Carrel and Guthrie: Ann. Surg., February, 1906, p. 203.
9. Horsley, J. Shelton: Surgery of the Blood Vessels, St. Louis, C. V. Mosby Company, 1915, p. 46.
10. Horsley, J. S., and Whitehead, R. H.: A Study of Reversal of the Circulation in the Lower Extremity, THE JOURNAL A. M. A., March 13, 1915, p. 873.
11. Horsley, J. S.: Ann. Surg., March, 1916, p. 277.
12. Stetten, De Witt: Surg., Gynec. and Obst., April, 1915, p. 381.

and the arterial blood in the reversed large vein then rushes into the smaller veins. The smaller valves in the small veins require relatively more force to overcome them than the larger valves in the large vein because of the relation of cubical contents to square surface, and soon the reversed arterial blood reaches a point at

Fig. 2.—Photomicrograph showing old lesion of thrombo-angiitis obliterans in the posterior tibial artery. From a case of Dr. Leo Buerger, who kindly lent me the photomicrograph.

which the valves in the small veins check it permanently. These valves probably thicken, and the collateral circulation increases. With the increase of the collateral circulation the pressure on the obstructing valves is reduced and, instead of the constant pounding of the heart tending to break these valves, it seems to do just the reverse. This is clearly shown by an experiment in which the dog lived sixty-nine days and in which the arterial blood went but little farther down the leg than it did in a dog that was injected half an hour after the circulation was reversed. Valves that are not overcome within the first few minutes have less and less pressure on them until the collateral circulation develops to the maximum.

The benefit obtained by reversal of circulation in threatened gangrene is clearly not due to the fact that the arterial blood in the reversed vein reaches the affected tissue, but it is because the obstruction in the venous return causes blood delivered from the arteries to linger in the tissues longer than it otherwise would. If we suppose, for instance, that it takes a definite number of seconds for tissues to take up a proper amount of nourishment from the arterial blood and that the carrying power of the arteries has been reduced to one fifth of their normal capacity, while the veins have been but slightly affected, it can easily be seen that the small amount of arterial blood that does reach the tissues is taken away by the comparatively unimpaired venous circulation more quickly than normally, before it can give up proper nutriment to the tissues. On this account, then, the arterial blood, instead of remaining in the tissues the physiologic time, seems to be drained away too quickly, whereas the obstruction in the venous return produced by an arteriovenous anastomosis would dam back the arterial blood, and cause it to remain in the tissues a longer time and so give up more of its nutrition than it could if the venous return were unobstructed.

Ligation of the femoral vein, as done by von Oppel, Coenen, Lilienthal and others, will produce this obstruction to the venous return more accurately and with much less danger than reversal of the circulation, and is an operation that can be done in a few minutes under local anesthesia. It is indicated in threatened or early dry gangrene when the veins are not too greatly involved.

In two cases reported below, one gangrene from thrombo-angiitis obliterans and the other from arteriosclerosis, this operation of ligating the femoral vein was done. In the first case it was done on one femoral vein, in the second case on both.

REPORT OF CASES

Case 1.—*History.*—M., man, aged 26, single, is a carriage painter, though he has not worked at this trade for five years. He is an American, born in Virginia. There is no history of any Jewish ancestry. His father, aged 54, is in good health. There is no tuberculosis or cancer in the family except that his grandmother died of cancer of the neck. His mother died following childbirth. The patient had three brothers, all of whom are dead; one died from typhoid, one was drowned and one died from an unknown cause.

Except for the present trouble, the patient has never been seriously sick, though he had mumps and chickenpox when young and a slight attack of malaria about seven years ago. He denies ever having had any venereal disease. Two Wassermanns have been made, both of which were negative.

The first symptoms began about September, 1909. Pus formed under the nails of the second and third toe of the right foot, accompanied by considerable pain. The toes and adjoining portion of the foot were very red and swollen

Fig. 3.—Another photomicrograph from a case of thrombo-angiitis obliterans of Dr. Buerger.

and became gangrenous. The affected toes were removed by Dr. Robert C. Bryan. Healing was sluggish and was not complete for nearly two years, but there has been no trouble with the right foot since. About September, 1913, the patient began suffering with the great toe and second toe of the left foot. These toes became red and painful, and amputation was done in May, 1914. Healing was slow, but was complete in a few months. For a year after the amputation he was

free from pain. About July, 1915, pain returned in the left foot, followed by dark redness on the inner side of the foot near the stump of the amputated great toe. The pain was intense and required large doses of morphin for its relief.

Fig. 4.—Photomicrograph in Case 1, × 20. Section stained with hematoxylin and eosin; from posterior tibial vessels. Note the artery to the right and the accompanying veins. The veins are but slightly affected. The thrombus in the artery has been organized and is canalized by two vessels.

Sept. 9, 1915, the left femoral vein was ligated with catgut, under novocain, in the upper part of Hunter's canal. A few minutes after ligation, the left foot, which had been cold, became warm and congested. The condition of the foot seemed to improve for a few days, though the pain continued. Two weeks after the operation, however, gangrene began to spread, and dark mottled spots appeared over the dorsum of the foot. Amputation of the left leg was then done, Oct. 2, 1915, under ether, at about the junction of the upper and middle third of the leg. No tourniquet was used, the vessels being ligated as exposed. The wound was closed with silkworm-gut sutures, lightly tied. Healing was by first intention. The patient left the hospital in good condition, Nov. 6, 1915. There has been no pain or trouble of any kind in the stump of the leg since the operation, and there is at present, seven months after operation, no tenderness on pressure on the stump. The patient has ordered an artificial leg. He has some pain in the hands and wrists, which may be due to the use of crutches.

Laboratory Examination.—Portions of the posterior tibial and of the anterior tibial vessels were dissected from the amputated leg, and serial sections were made in the laboratory of Dr. H. T. Marshall, professor of pathology in the University of Virginia, Department of Medicine. The sections were variously stained with hematoxylin and eosin, orcein, or van Gieson's stain. The findings show, according to Dr. Marshall, who has devoted much time to a study of these sections, evidence of old thrombus deposit. Dr. Leo Buerger, who kindly examined the sections, reports that they undoubtedly show lesions of an old thrombo-angiitis obliterans. The inner elastic membrane is distinctly seen. The sections stained with orcein, an elastic tissue stain, show plainly that there is no excess of elastic tissue within the inner elastic membrane, which does occur in the endarteritis of arteriosclerosis. Organization and canalization of the thrombus is seen in the sections. Two fairly large vessels canalize the old thrombus, and one of them in a section stained with orcein (Fig. 7) can be seen to approach the internal elastic membrane, a feature which, according to Buerger, is distinctive, as these vessels tend to divide and may actually penetrate the internal elastic membrane and enter the media.

CASE 2.—A preliminary report[13] on this case has been published. At the time the article which contained the report was written, the patient was living, though when the proof sheet was received he had died and a note was made to that effect.

History.—Man, aged 70, white, had had a positive Wassermann reaction. In December, 1913, he began losing strength and weight, and his physician, Dr. George Ross, found both sugar and albumin in the urine in considerable quantities. In the fall of 1914 a dark line appeared on the heel of the right foot, and a corn on the little toe of the same foot became painful and red, and a little later showed marked discoloration. A scratch on the right leg, about 2 inches above the external malleolus, was the beginning of an ulcer which gradually extended until it became an inch in diameter. On admission to the hospital, April 9, 1915, this ulcer, evidently the result of a small area of superficial gangrene, had attained its largest size. The little toe of the right foot was completely gangrenous with a line of demarcation around its base. There was an area of dry gangrene covering the right heel, 2½ inches in diameter. Both feet were swollen and painful. On the left heel there was a dark crack 1¼ inches long. The skin was red and desquamating over the dorsum of the left foot, though the toes were pale. The left foot was undergoing the same changes as the right foot underwent before gangrene set in.

Operation and Results.—On the day of admission, April 9, 1915, the femoral veins in both thighs were ligated with

Fig. 5.—Photomicrograph in Case 1, × 20. This section is stained with orcein, which brings out the elastic tissue, and shows the old clot in the artery which is organized and canalized by two vessels. Posterior tibial vessels. Note the distinct absence of elastic tissue within the organized thrombus.

catgut, under local anesthesia, in the upper part of Hunter's canal. The superficial veins in both legs became filled and

13. Horsley, J. S.: South. Med. Jour., November, 1915.

prominent immediately after the ligation. The gangrenous right toe was removed. The day following the operation there was less pain, the edema in the left foot had entirely disappeared, and that in the right foot was almost gone.

Fig. 6.—Photomicrograph in Case 1, from section stained with hematoxylin, × 45. The inner elastic membrane is shown and within this is the old organized clot, canalized by two vessels. From posterior tibial artery.

This was unusual, for ligation of the veins is supposed to predispose to edema if it does not cause it. Probably the better balanced circulation permitted the arterial blood to take up the fluid in the tissues. Two weeks after operation the patient was discharged from the hospital. At that time there was no swelling in either foot, and the pain was practically gone. The wound at the base of the little toe of the right foot had a few granulations, and the gangrenous tissue in the right heel was beginning to separate. The ulcer above the external malleolus was healing, and the patient expressed himself as feeling much better.

May 3, 1915, I saw the patient at his residence. The swelling had returned in both feet, though it was not so bad as before the operation. Pain had also increased, and the small discolored crack in the left heel was unchanged. The ulcer above the right malleolus had entirely healed and was covered with smooth skin. Later the stump of the little toe on the right foot became infected at the patient's home where dressings could not be well done, and pus burrowed into the foot. The leg was amputated under local anesthesia, May 15, 1915. No tourniquet was used. Though the healing was slow, there was no gangrene. The diabetes and albuminuria continued. About the middle of June, gangrene of the left foot spread rapidly from the little toe. The patient died, July 10, 1915. No further operation was done as, with sugar and albumin abundant in his urine, further operation was obviously useless. The patient was syphilitic, diabetic, nephritic and 70 years old. We had no right to expect much in a case of this kind, but the patient was satisfied that he had obtained benefit, particularly in the decrease of pain and in the healing of the ulcer above the external malleolus.

CONCLUSIONS

While in neither of these cases were the clinical results after ligation of the femoral vein permanently successful, there was some temporary improvement in each case, slight though it was in the first. The results, however, compare very well with the favorable results usually reported from operations for reversal of the circulation by arteriovenous anastomosis in which the improvement consists in a better color and more warmth in the foot with lessening of pain. Results of this kind can be equally well obtained by ligating the femoral vein. In very early cases of slow gangangrene in which the veins are unaffected or but slightly involved, it is possible that this simple operation may give relief for a long time or, in a few instances, may be permanently beneficial.

ABSTRACT OF DISCUSSION

Dr. De Witt Stetten, New York: I wish Dr. Horsley would abandon the term "reversal of the circulation." I know that we have identical opinions on arteriovenous anastomosis, which we have reached simultaneously but by different routes. My injection experiments on limbs amputated for gangrene of various sorts where arteriovenous anastomosis would have been indicated show conclusively that the arterial circulation to the periphery, even in very advanced arterial disease, is better and easier than the retrograde venous circulation, because of the obstruction of the valves and the short-circuiting of the blood through anastomoses of venous collaterals. But, the operation is dangerous and the results have been most unsatisfactory in the vast majority of cases. The few so-called successful results have been obtained more in spite of than because of the operation, as various factors play a rôle in the improvement, as improvement has occurred after definite closure and failure has followed perfect patency of the arteriovenous fistula. Even if the anastomosis functionates, which it rarely does, there can be no circulatory improvement, but rather the reverse. Even if the operation were definitely proved useful, the possible indications would be restricted to almost nil. Dr. Horsley's animal experiments have substantiated my conclusions. Regarding von Oppel's

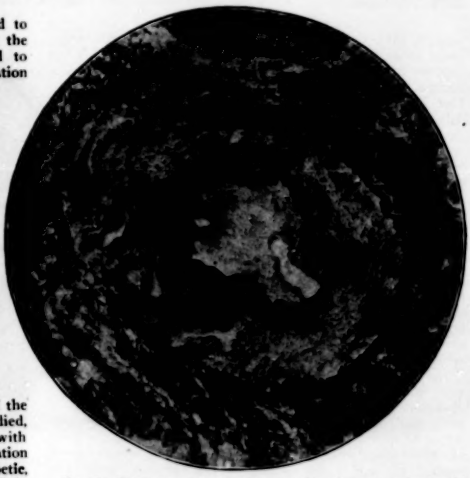

Fig. 7.—Photomicrograph in Case 1, from section stained with orcein to bring out the elastic tissue. × 45. From posterior tibial artery.

ligation of the femoral vein, I did feel with Dr. Horsley that whatever success followed arteriovenous anastomosis was due to the same circulatory conditions that followed ligation, yet, while I do not wish to be understood as doubting the utility of ligation, I must confess that, if it helps, I cannot quite understand the reason. I still favor ultraconservatism in the treatment of all types of gangrene—avoiding any operation as long as possible. Besides systemic treatment of the patient and surgical treatment of the wound, baking, warm baths, alternating hot and cold baths, posture, rest, moist dressings, etc., have given the best results, which, while not as striking nor as prompt in the thrombo-angiitis obliterans and senile varieties as in the diabetic cases, are nevertheless obtained with patience, and many limbs and lives are saved. The treatment by hypodermoclyses, I believe, improves the patient's general tone and thus aids in the recovery. Concerning the microbic theory of thrombo-angiitis obliterans, I cannot conceive of an infectious disease limited to one sex and practically to one race. Among the many patients I have treated, I have never seen a female, and except for one Russian Christian, all the rest have been Russian, Polish or Galician Jews. I am convinced that the causative factors of this disease are of a nature similar to those of hemophilia, i. e., that some abnormality of the blood or instability of the vascular system has developed in certain racial groups, that this is transmitted to the males and becomes evident between the ages of 20 and 35. Although, as yet, definite proof of the hereditary nature of the disease is lacking, certain observations by Dr. Garbat tend to confirm these impressions.

DR. CHARLES GOODMAN, New York: In reply to the arguments against the advisability of performing an arteriovenous anastomosis for presenile gangrene, I should like to call attention to the many instances in surgery in which an operation is condemned theoretically on anatomic and physiologic grounds, and yet yields a surprising practical benefit. Take, for example, gastro-enterostomy. The jejunum was never meant to have any direct communication with the stomach, yet with the modern perfected technic this operation has attained a recognized place in surgery. Intravenous saline infusion after hemorrhage and shock is another instance. We cannot forget that there is such a thing as the adaptability of living tissue to changed conditions without which we could not practice surgery. So, in arteriovenous anastomosis for the relief of obstructed circulation of the extremities, it is not definitely known how much of the circulation reaches the periphery or how the reversal of the circulation takes place, but we have clinical evidence that the symptoms were relieved shortly after the operation for an indefinite period. All writers agree that these cases eventually come to a high amputation. We have had clinical evidences that trophic ulcers which had resisted all other forms of treatment take on appearances of repair and heal. An extremity previously cold and cadaverous has become warm and pink, pulsation could be felt distinctly in the veins peripheral to the anastomosis, and superficial veins have become distended. Pain has been relieved and the parts threatened or the actual seat of gangrene returned to normal. We cannot disprove the practicability of the operation as a palliative measure under proper indications. A study of the disease from an ethnological and historical point of view led me to believe that endarteritis obliterans and thrombo-angiitis are late manifestations of a previous typhus infection. Serologic tests have shown a complete agglutination reaction in at least three of twenty-one specimens of blood. We had a three plus complement fixation reaction in one patient and a four plus complement in two. One of these with the most pronounced reaction had active lesions.

DR. NATHANIEL GINSBURG, Philadelphia: In considering this form of peripheral vascular disturbance, it is most important to distinguish sharply between the various types of circulatory failure. Dr. Horsley has contributed some very important observations to our knowledge concerning the possibility of so-called reversal of the circulation. I have long believed that this operation is founded on a faulty anatomic and physiologic basis, and that laboratory experimentation with animals could only be applied to the human being so far as the technical features of the anastomosis are concerned. With reference to diabetic gangrene, and peripheral gangrene due to arteriosclerotic changes, it is my belief that surgery in the first type of cases should be sparing, and as conservative as possible. In this class of cases I pay particular attention to the acidosis present, making every effort to reduce the ketonuria by means of the Allen treatment and other measures which have for their purpose the rapid and effective reduction in the sugar content in the blood. With regard to senile gangrene, no measure can overcome the pathology present in the peripheral vessels, and a circulatory failure cannot be reestablished by any means at our disposal. Peripheral gangrene, known as thrombo-angiitis obliterans, is a distinct clinical entity about whose syndrome we have little knowledge so far as the etiologic factors are concerned. It is important to distinguish this class of cases of peripheral blood vessel disturbance, and to confine to this class those young or middle aged adult males of Russian, Galician, or Lithuanian birth of the Hebrew race, in whom this disease is always found. While it is true that Ochsner has observed this condition in Swedes, and Kogo and Mayesima of Japan have studied and reported the occurrence of this condition in the Japanese, in this country practically all the cases observed have been in the type above stated and exclusively in the male sex. I have been impressed by the fact that some vague toxic factor is the underlying cause of this condition. These patients, as a rule, are inveterate cigaret smokers and have been exposed, through occupation and dire necessity, to climatic conditions which, plus constant static position, have predisposed to peripheral circulatory failure. The large majority of these cases includes men engaged in baking, barbering, street venders and machine workers, where there is constant standing on the feet over long periods of time. Von Oppel has performed femoral vein ligation in these cases, believing that the peripheral venous stasis thereby induced in the affected limbs, from the physiologic point of view, has the same rela-

Fig. 8.—Higher power (× 150) of Figure 7, showing inner and outer elastic membrane.

tive surgical value as arteriovenous anastomosis. Kogo and Mayesima found that these patients have an increased viscosity of the blood, and they have made effectual attempts by employing sodium citrate solution for intravenous injection to reduce the increased viscosity. They do not report in their list of fifteen cases any instance of femoral vein ligation. Garbat of New York recently stated that multiple injections of 2 per cent. sodium citrate solution into the veins did not have a deleterious effect. I have employed femoral vein ligation in four cases with coincident injections of Ringer's solution, and 2 per cent. solution of sodium citrate. There is every reason to believe that in three of these cases a very marked benefit has resulted, and in one instance the patient has begged for the same procedure in the other limb. I hope to report these and other cases with more detail with reference to the end results attained, and the real value attaching to femoral vein ligation in cases of this particular type. We have tried foot baths, heat, Bier's hyperemia, electrotherapy, heliotherapy, and the employment of many drugs, all of which have been of no value so far as the course of the disease is concerned. Finally, it must be borne in mind that the disease we are treating is one in which there is definite pathologic change in the peripheral blood vessels, evidenced by microscopic study of the sections removed; the disease being seen in its late stages and therefore often beyond any other palliative means of treatment.

DR. CARL BECK, Chicago: Dr. Horsley mentioned that Dr. Carrel depended on the change of color when judging the results of his anastomosis, declaring that the brighter color of the vein indicated that arterial blood was passing through it. Dr. Carrel depended, as I can state from actual experience with him, on the pulsation of the vein. This was clearly proved to me to be the case in one instance, which I have not published myself, but which is included in the publication of Dr. Halsted of Chicago, to whom I gave the details of the case when he published a series of anastomoses of blood vessels. I have had several cases in which I reversed the circulation by anastomosis, but this particular one was of the greatest interest. The patient was a man with gangrene of both feet, progressive, and without tendency to demarcation. After some weeks of observation, we decided to make an arteriovenous anastomosis, which we did without any mishap. Demarcation took place at once, not only on the limb which was operated on but also on the other limb. The dead portions of the feet, clear up to the tarsocrural joint, dropped off, and when the stumps granulated, we decided to amputate the badly looking stumps and make healthy and functionally good stumps by reamputation.

That the artery drained into the vein was proved to me by the spurting of every vein on the side where the anastomosis had been performed. Two interns operated at the same time and I watched the operation: On one side spurting of veins, on the other none at all. That shows that anastomosis will reverse the circulation. Whether it will be beneficial for gangrene is another question.

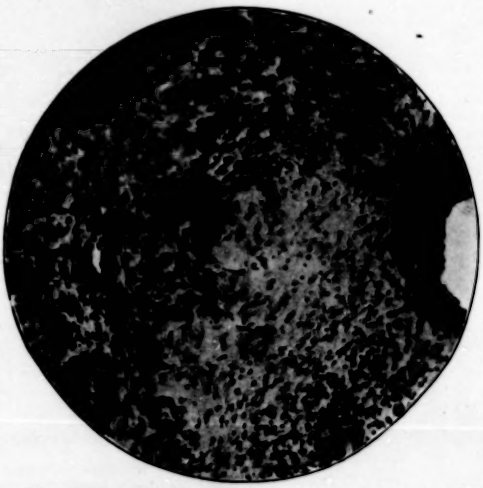

Fig. 9.—Higher power (× 150) of Figure 6. On the right is part of the lumen of one of the canalizing vessels. Through the center of the photograph runs the inner elastic membrane. To the left is the media, which is still well vascularized.

DR. GEORGE MORRIS DORRANCE, Philadelphia: Since the time that Dr. Carrel introduced his method of reversing the circulation, none of our experimental or clinical work has been satisfactory. We studied the reversal in the dog by injecting thorium above the anastomosis with approximately the same pressure as the dog's heart and found by Roentgen ray that practically all of it returned from the first or second branch of the vein and we did not obtain a complete reversal. In man, you have the added difficulty of an arteriosclerotic artery. At best there will be a large number of closures of the anastomoses. From a careful analysis of both the clinical and laboratory work, I find that what little success is obtained is due to ligation of the vein. Experiments made on the cadaver, though faulty, have led to the same conclusions. Of course, it is here necessary to first wash out the vessels. Working along these lines, I cannot see what is the use of fooling with these cases and dragging them along. Why not amputate early, providing the ligation of the vein does not give you results? Get these people back to work again.

DR. ERNEST LAPLACE, Philadelphia: Dr. Dorrance has given us the keynote to the practical side of the question. This gangrene is not a local trouble. It is a local manifestation the real nature of which is unknown to us and is a puzzle in surgical pathology today. It affects certain people of the Jewish race and the male sex only, so far as we know. In the vast majority of cases I believe the specific treatment will do some good with or without knowing exactly the reason it does so. The disease is more manifest in the toe because the circulation is weakest there. After the amputation what then? In the vast majority of instances on the eighth day there is a black line around the edge of the stump and there is a repetition of the condition. I believe it is poor surgery under the circumstances to sew that wound up. I have had almost 100 cases of this in the last twenty-five years and found it unsafe to sew these wounds up. There is some poison that prevents healing of the wound. There is something lacking in the blood of that particular case. This struck me long ago as being the case and therefore I determined about ten years ago to substitute human serum to the wound. Ascitic serum is kept on ice at 1 C.; this is used to bathe the wound constantly. The wound will generate healthy granulations and heal kindly. Though I have not published this before I have still to see a recurrence in cases treated as above. A necessary amputation high up should be treated in the same way. I believe that in ordinary serum there is something which the patient needs to make the wound a healthy one. I believe the results are so striking that it is now time that I should make them known.

DR. J. FRANK CORBETT, Minneapolis: When one attempts to review the literature of senile gangrene one is impressed by the multiplicity of remedial measures. Each particular remedy has been accredited with success. None of these have ever come into general use. Therefore one is inclined to conclude that the collateral circulation accomplishes a great deal sometimes and is given very little credit. I do not believe that experimental work on animals is of much

value in determining the treatment of senile gangrene. In the first place, gangrene is common in the lower extremity and the blood supply of the leg in animals is very different from that of man. In addition to that, when we come to study the limbs which have been amputated for senile gangrene we find there are many general changes aside from the local anatomic changes. When we take such a limb and perfuse it with Ringer's solution under conditions imitating the blood pressure and pulse pressure of that member, we find that through the arterial side the rate of flow is very different in senile gangrene from what it is normally. In addition to that we find even in cases that are not recognized as diabetic changes in the blood sugar. I have been surprised at the high sugar content of the blood of some of our cases where nothing came through in the urine. In addition to this, these cases are usually complicated with kidney lesions and we find that the blood has an increased urea and other components. I am just beginning a study on the viscosity of the blood, in which, to my surprise, I find an increased viscosity occurs in other conditions besides thrombo-angiitis obliterans. Therefore, I do not believe we are at the present time in a position to say positively that we have a remedy in anything short of amputation. In the normal limb it is impossible to reverse the circulation in twenty-four hours of perfusion with the best apparatus I could make to represent the heart's action. Sometimes after hours of such perfusion we got a few cubic centimeters of fluid. I do not believe that the blood that we got through by breaking down these damaged vein valves and working back was anywhere near enough to supply the vitality of the limb. But possibly some such condition as that may account for the early successes and improvements reported by Bernheim.

DR. J. SHELTON HORSLEY, Richmond, Va.: I am not proposing any operation that cures all cases of threatened gangrene. Ligation of the femoral vein is a procedure originally proposed by von Oppel and, in certain types of threatened gangrene, seems to help. In the early stages of thrombo-angiitis just before the clot forms all of the coats of the vessel are infiltrated with small round cells and the infiltration does not disappear until the clot is well organized. This certainly seems to indicate an inflammatory origin. Practical clinical knowledge should go hand in hand with laboratory work. If the gentlemen who object to the conclusions that we have reached are not convinced by the evidence, which includes the usual injection method of studying blood vessels, roentgenograms, dissections by a professor of anatomy, and then the work of Stetten on limbs amputated for this very disease, I confess I do not know what will move them. The reversed vein will, of course, spurt if it is cut before the blood reaches the valves in the smaller veins. It is mainly the relation of cubical contents to square surface, and if a large varicose vein would reach to the foot probably the reversed injection would go there also. This does not in any way alter the situation. Our experimental work together with the experimental work of Stetten on amputated limbs shows that in no single instance did the reversed circulation ever reach the foot. The clinical improvement following reversal of the circulation has already been explained in the paper and is due to the balancing of the circulation. I am not an advocate of any one method of treatment for slow or threatened gangrene, though I think in certain instances ligation of the femoral vein may be helpful.

Fig. 1.—Early stage of tuberculosis of the neck lymphatics: *A*, tonsillar node, caseous; *B*, tuberculous nodes of the subparotid group; *C*, posterior nodes; *D*, nodes of the deep jugular chain; *E*, *E*, sternomastoid muscle; *F*, levator anguli scapulae muscle; *G*, scalenus posticus muscle; *H*, scalenus medius muscle; *I*, scalenus anticus muscle; *J*, *J*, spinal accessory nerve; *K*, *K*, *K*, *K*, branches of the cervical plexus; *L*, phrenic nerve; *M*, internal jugular vein.

TUBERCULOSIS OF THE CERVICAL LYMPHATICS

A STUDY OF SIX HUNDRED AND EIGHTY-SEVEN CASES *

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Modern students of tuberculosis believe that tuberculous infection usually comes in childhood and that it may develop then, or be quiescent, or be cured. If quiescent, it may show renewed activity at later periods of life. Baldwin[1] says:

> Childhood is the time of infection, youth the time of superinfection, and that from extension of the primary disease.

McCleave[2] says:

> It is now generally conceded that infection with the tubercle bacillus is, in the majority of cases, an incident of early life, and that, regardless of the time of development of clinical symptoms, tuberculosis is, in its origin at least, essentially a disease of childhood.

Francine[3] says:

> This infection during childhood does not, as a rule, develop into pulmonary tuberculosis at that time, but lies dormant in the lymphatic system, or is latent until adult life, when it breaks forth or manifests itself in pulmonary localization. It is largely children infected by contact in their homes who furnish later the ever oncoming crop of consumptives.

A large number of similar quotations could be made to show the present general belief that primary tuberculous infection usually occurs in childhood and that this fact should be appreciated if we would combat the disease intelligently.

Tuberculosis of the neck lymphatics may be advantageously studied from this point of view. Childhood is the period when the infection most commonly comes; and this infection may be cured, it may lie dormant with the possibility of later activity, or it may extend rapidly. In each of these events it presents definite

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Baldwin: Bull. Johns Hopkins Hosp., 1913, xxiv, 209.
2. McCleave, T. C.: The Relation of Bovine Tuberculosis to Early Tuberculosis in Children, Am. Jour. Dis. Child., September, 1914, p. 210.
3. Francine, A. P.: The Underlying Factors in the Spread of Tuberculosis, THE JOURNAL A. M. A., March 7, 1914, p. 767.

clinical pictures, and since the nodes are near the surface, there is a remarkable opportunity to study the peculiarities of the disease.

This paper is based on a study of 687 cases in which operation was performed by myself or by my associates or assistants under my observation during the last twenty-two years. The cases have been followed with great care. During a part of the time a special fund has been available for that purpose, and a great many patients have been brought to the hospital for inspection from time to time. The mass of observation thus accumulated has been large, although there is a limit to the possibility of tracing the class of people who live in the New York tenements. There were also periods when little "following up" was done. During certain parts of this time the greater portion of the patients have been children between the ages of 3 and 14 years, and the results with them have been wonderfully satisfactory. During other parts there have been many adults with widely disseminated tuberculosis, and the results with them have been discouraging. It seems best, therefore, to group the patients according to the period of development which their tuberculosis has reached and to study the characteristics of each group.

Fig. 2.—Patient in early stage of tuberculosis of the neck lymphatics.

GROUP 1

Whether tubercle bacilli are inhaled with the air or swallowed with the food, the crypts of the tonsils, faucial and pharyngeal, offer possible lodging places. The faucial tonsils are particularly likely to harbor them. Enlargement of the upper cervical lymphatics promptly follows such infection, thus establishing what we may call the early stage of lymphatic neck tuberculosis. The proper understanding of this stage is important.

The route of infection from the tonsil to the tonsillar lymph node is a very short one. This has been graphically described by Wood.[4] The tonsillar node is one of a group of nodes which lie beneath the parotid gland and the mastoid process and which are covered by the sternomastoid muscle. This group constitutes the first great line of defense against the invading tubercle bacilli. The invaders cause swelling, fibrosis, caseation and possibly abscess formation, but if the defense holds there is a distinct stage when the process is still local and has extended very little beyond this upper group of lymph nodes.

Figure 1 indicates the condition. Figures 2 and 3 indicate the appearance of patients who have this condition.

Of the 687 patients who form the basis of this paper, 452 were observed in this stage. Many of them, however, had somewhat more extensive inflammation than Figure 1 indicates. Since infections into the submental, submaxillary and parotid nodes also drain into the upper part of the jugular chain, some of them are also included in this group. The average age of the entire group was 8.03 years.

Sixty-seven of these patients were followed from six to twenty years; 23 were followed into the sixth year; 36 into the fifth year; 53 into the fourth year; 61 into the third year; 65 into the second year, and 49 into the first year; 98 were not observed after leaving the hospital; 91 per cent. of the patients traced were apparently cured when last seen; 8.75 per cent. showed slight evidence of recurrence; 0.25 per cent., that is, one patient, had died of intercurrent disease—typhoid fever; 8 per cent. had secondary operations during the period of observation.

Thus we see that for this class of patients the results are eminently satisfactory. It is hard to think of another form of surgical operation which gives better results. These results were obtained in spite of bad hygienic conditions, since most of these patients had to return to insanitary tenement house surroundings.

It has been suggested that many of these cases had the bovine type of tuberculosis and that this accounts for the good results.

Drs. Park and Krumwiede[5] have examined many of these cases to determine this question. It is interesting to note their findings for patients from 5 to 16 years, which showed the bovine type in only 29.6 per cent.

GROUP 2

The patient's power of dealing with tuberculosis largely determines the stage of the disease in which we see him. Many of those in Group 1 seek surgical aid because abscesses form within the subparotid nodes, break through the node capsule and cause unsightly swellings. If these abscesses break and form sinuses, or if the inflammation progresses without abscess formation, the nodes along the entire jugular chain and those along the trapezius border may become enlarged. This constitutes another pathologic and clinical picture which we may study as Group 2. Figure 4 indicates the gross pathologic condition in this group, and Figures 5 and 6 show the appearance of two of the patients. There were 185 patients in this group. Their average age was 15.9 years, nearly double that of Group 1. Sixty-nine of them were over 20 years of age. Twenty-nine of these patients were followed from six to twenty years; 11 were followed into the sixth year; 18 into the fifth year; 14 into the fourth year;

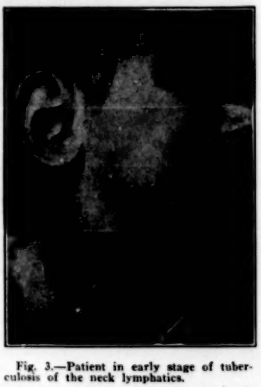

Fig. 3.—Patient in early stage of tuberculosis of the neck lymphatics.

4. Wood, G. B.: Am. Jour. Med. Sc., April, 1906, p. 620.

5. Park and Krumwiede: Jour. Med. Research, 1910, xxiii, 205.

24 into the third year; 19 into the second year, and 10 into the first year; 60 were not observed after leaving the hospital; 68.2 per cent. of the patients traced were apparently cured when last seen; 23.8 per cent. showed recurrences when last seen; 5.5 per cent. had died of intercurrent disease, partly tuberculous; 2.4 per cent., or three patients, died in the hospital, two from hemorrhage, and one from thrombosis; 28.5 per cent. of the traced patients had two or more operations.

It is thus seen that the results obtained in Group 2 were greatly inferior to those obtained in Group 1. We believe that nearly all of these patients passed through the stage shown in Group 1. It would have been much better if they had had their operations then. Very few patients who have thorough operations when in Group 1 ever reach Group 2.

GROUP 3

There is another division, those with diffuse tuberculosis, which we may call Group 3. The patients show little power of resisting tuberculosis. The neck infection quickly involves a great number of nodes, and there are usually evidences of tuberculosis in other parts of the body. There were fifty patients in this group. Their average age was 12.7 years, about midway between Groups 1 and 2. Thirteen of these patients were followed from six to seventeen years; 3 were followed into the sixth year; 5 into the fifth year; 2 into the fourth year; 5 into the third year; 9 into the second year, and 6 into the first year; 76 were not observed after leaving the hospital; 1 died in the hospital; 34 per cent. of the patients traced were apparently cured when last seen; 43.2 per cent. were suffering from recurrences or other forms of tuberculosis; 20.4 per cent. had died of intercurrent disease, largely tuberculosis; 1 patient died in the hospital, soon after a minor palliative operation.

Fig. 4.—Late stage of tuberculosis of neck lymphatics: *A, A, A,* tuberculous lymph nodes; *B,* spinal accessory nerve; *C, C,* branches of cervical plexus; *D,* internal jugular vein; *E,* communicans hypoglossi nerve.

Figures 7 and 8 indicate the appearance of two patients in this group.

It is manifest that treatment of this type of cases is far from satisfactory. If, however, one third of them are apparently cured after long periods of observation, we have some encouragement.

COMMENT

On studying these groups of cases it is easy to see why so much confusion exists about this subject. Certain types of cases predominate in individual clinics. Those observers who see mainly cases of Group 1 will have very optimistic ideas about the curability of the disease. For instance: One continuous sequence of 100 patients in this series showed 86 per cent. in Group 1. During the follow up work in which these patients figured, there were 106 patients examined: ninety-four of them were recorded as strong, vigorous, ruddy or in good health. Seven were recorded as pale or not strong, and only five were advised to have further operation for recurrences. On the other hand, when the work has been in a hospital, to which a different type of patients came — where many patients were in Groups 2 and 3, the results have been much less satisfactory, and complications and recurrences have been more frequent.

Much confusion exists about the term "operation" as applied to these cases. If the incision of an abscess, or the removal of a single node, is called an "operation," we shall have very poor operative results; if the term "operation" means the removal of all the enlarged lymph nodes in the neck, we shall have very good operative results. The most common error comes in those patients who have cold abscesses. When these abscesses are incised, a smooth layer of inflammatory tissue is found within. This constitutes the deep abscess wall, and seems continuous with the deep fascia. One may easily believe that the abscess comprises the entire swelling, and that there are no enlarged nodes still deeper in the neck, and in this belief, may be content with simply draining the abscess.

As a fact, these cases regularly have groups of nodes in the usual location beneath the sternomastoid muscle, and unless these nodes are found and removed, the operation is futile. The tubercular detritus, the so-called "pus" of the cold abscess, is no bar to thorough operation, since it seems to have little or no infective tendency, and healing takes place about as kindly as though it had not been present. Failure to appreciate the extent of the disease is a very common error. Inadequate and badly placed incisions and incomplete operations follow.

The technic of operation cannot be given in this paper.[6]

All operations should be done with due regard to the anatomy of the neck, and with careful precautions against nerve injury, particularly avoiding the spinal accessory nerve, and the lowest branch of the facial nerve. Transverse incisions give suitable exposures

6. Details of the technic used for most of these cases were published in Annals of Surgery, 1905, xlii, 49, and 1908, xlviii, 169. Judd (Ann. Surg., 1910, lii, 759) gives the details of operation for extensive cases by the posterior incision, and Mitchell (Bull. Johns Hopkins Hosp., 1902, xiii, 161) describes the operation by anterior incision.

for the majority of the cases, and have the great advantage of leaving scars which do not stretch, and hence are almost invisible. With the aid of suitable retraction, extensive dissections can be done through these transverse scars. In the far advanced cases, however, the scar is not the important factor, and longitudinal incisions should be used, since they give easier access to the masses of enlarged nodes.

It is not the purpose of this paper to make exhaustive comparisons between the different forms of treatment which are used for this disease. There are many of them: Roentgen-ray, sea bathing, heliotherapy, tuberculin, Bier's hyperemia, etc. It is rather my purpose to call attention to the natural history of the disease, and to the results of the treatment which I have used. I have, however, visited various institutions in which these measures are used, both in this country and abroad, and have noted at least three elements which should be considered: (1) differences in diagnosis; (2) differences in interpretation of what constitutes an operation, and (3) differences in interpretation of what constitutes a cure.

Dr. Farr, who saw many of these cases in the Wilkes Dispensary, states that probably five patients with hyperplastic adenitis apply there for every one with tuberculous adenitis. If a small proportion of them had been diagnosticated tuberculous, we would have had a very exaggerated idea of the curability of the disease.

2. It is astonishing to note the class of cases which are cited as operative failures. This has already been referred to. We do not talk about the operative treatment of appendicitis when the appendix is regularly left in position, nor about the operative treatment of cancer, unless every effort is made to remove all the cancerous material, nor do we talk about prostatectomy unless the prostate has been removed. We surely should not talk about the surgical removal of tuberculous neck lymphatics unless there is evidence that thorough operations have been done.

3. There seems to be only one way of determining the condition of the lymph nodes, that is, to study enough of them after removal to form a fair comparison between the preoperative appearance and the post-

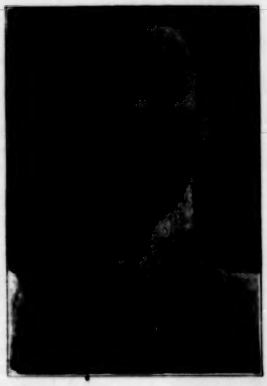

Fig. 5.—Late stage of tuberculosis of the neck lymphatics, Group 2.

Fig. 6.—Late stage of tuberculosis of the neck lymphatics, Group 2.

Fig. 7.—Late stage of tuberculosis of the neck lymphatics, Group 2.

1. Clinicians who do not have the opportunity of removing the lymph nodes and having them examined microscopically have come to consider many cases tuberculous which have not been so considered in this study. For example, Hawes says:

> In regard to the diagnosis of tuberculous adenitis, Allen believes that 60 per cent. of enlarged glands in children are tuberculous; Philip is of the opinion that enlarged cervical glands should be considered tuberculous unless there is definite indication to the contrary. It is my custom to consider these enlarged glands as tuberculous, if, on careful examination of the patient and treatment of all possible sources of infection, no other cause can be found.

It is manifest that on this basis many cases are treated as tuberculous which have not been so considered in our work, just as the older observers considered hip joint inflammations tuberculous, which we now know to be due to the pyogenic bacteria.

Very early in this study, such nodes, when removed, were found to show only hyperplasia; and since we do not advise the removal of hyperplastic nodes, every effort was made to avoid operation on them.

operative findings. It is possible that a patient should have a ruddy appearance and yet should have masses of tuberculous lymph nodes in the neck. Such patients have been considered cured by careful and honest advocates of some of the methods of treatment here given, but have not been classed as cured in this study.

If, therefore, we make a comparison between operative and nonoperative methods of treatment, we must remember that those who see the lymph nodes, and those who do not see them, must of necessity have different conceptions of the conditions with which they are dealing. With this in view, we must believe that our patients should have the advantage of such forms of treatment as are likely to help them. If operation gives them the best likelihood of cure, they should have operation. If operation plus another form of treatment is desirable, they should have both. If another form of treatment gives a quicker and better cure, it should be used; but a patient should not be allowed to drag from Stage 1 to Stage 2 while indefinite forms of treatment are being tried, nor should he be kept under treatment for months, or even years,

with discharging sinuses and disturbed health when a forty minute operation and ten days' after-treatment would result in cure.

ABSTRACT OF DISCUSSION

DR. JOHN F. GOLDEN, Chicago: I think Dr. Dowd's division is the same as ours, that is, cases occurring in children and in adults. Tuberculosis of the cervical lymph glands in children

Fig. 8.—Chain of tuberculous lymph nodes removed from patient in Group 2.

has a tendency to cure itself without the aid of surgical intervention. In the adult it is quite different and the division might be carried to the descending infections which become limited in the chain. When it is stopped at a point and held, the patient's resistance tends to cure. There is still another type in which the tuberculosis of the cervical glands ascends from the mediastinum; also tuberculosis of the cervical lymph glands coincident with a tuberculosis of the lung, peritoneum or elsewhere. The differentiation of these types and the cure of the tuberculosis are accomplished not by removing the glands but rather by increasing the patient's resistance. We have found the tuberculin method the best. We use the standard solutions hypodermically both diagnostically and therapeutically, together with the administration of fats in the forms of an emulsion of cod-liver oil, butter and cream. We educate the patient to take his temperature at regular daily intervals as a control to the administration of the tuberculin. Uniformly in children we secure by this method a recession of the glands, some of them breaking down and discharging a cheesy substance, but uniformly progressing to a cure without enucleation. The usual diagnostic test used by us is one twentieth of a drop of pure tuberculin. This is given after the patient has been educated to take his temperature at three-hour intervals during the day. The temperature range from sixteen to twenty-four hours later is a good index to the extent of the infection and the degree of resistance of the patient. In cases in which we find a tuberculosis of the cervical lymphatics and the patient gives a great degree of reaction, temperature, nausea, vomiting and headache, there is as a rule a tuberculosis elsewhere.

DR. ROBERT T. MORRIS, New York: Perhaps the majority of cases of tuberculosis of the lymph glands of the neck, in the various groups in young patients and in older patients in cases in which the glands have not already broken down, do not require operation at all, provided that the patient is so situated at hospital or in the private house that he may have the full benefit of our knowledge of the subject. First, I would emphasize that tuberculin must be used properly. Unless tuberculin is used properly it may be injurious. Next, increasing the general resistance of the patient is most important. The full meaning of that is not clear to any except those who have made a special study of tuberculosis and who know that no two patients are to be treated alike. In the cases suitable for local treatment, not operative, my best resource for dealing with many of these cases is along the lines of the Bier idea of hyperemia. In some cases we have had very successful results from using iodoform and oil injection. It is rather tedious and troublesome for young patients, who do not bear it well. They do not allow us to handle them. In other cases we have done well with Roentgen ray. But best of all has been the idea brought forward by Bier. In order to carry that out in suitable cases I have the patient rest the neck against a hot water bag for several minutes, then an ice bag, again the hot water bag for several minutes, then the ice bag for several minutes. Many children will play with their toys and older patients will read something which they had not the opportunity to read before because they have been too busy, if you persuade them that by carrying on the method of Bier hyperemia you may so stimulate the leukocytosis that tuberculosis disappears. It is a slow process and requires patience on the part of the patients. Most of these patients of all classes are curable without any sort of operation whatsoever, provided they are managed according to the best methods of today.

DR. W. E. LADD, Boston: For the last four or five years I have been following the teaching of Dr. Dowd. I cannot disagree with him on many points but would like to emphasize some. I have operated in about 160 cases of tubercular cervical adenitis, mostly in children. One hundred and thirty of these have been followed for from six months to five years. Of that number 93 per cent. are apparently cured, which is practically the same result as Dr. Dowd gets. The importance of the portal of entry should be emphasized.

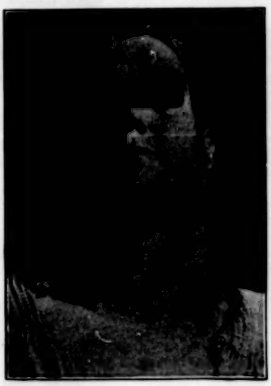

Fig. 9.—Patient with diffuse tuberculosis, Group 3.

Fig. 10.—Patient with diffuse tuberculosis, Group 3.

In my series of cases the tonsil was believed to harbor the primary focus in from 75 to 80 per cent. of the cases. Many of these have been examined microscopically and show miliary tubercles often situated close to the crypts or close to the posterior capsule of the tonsil. I believe it is just as illogical to remove the glands from the neck without removing the tonsils as to remove tonsils without removing the glands from the neck. In either case you leave tuberculosis behind. In removing the tonsil the capsule should

be included as otherwise foci of tuberculosis may be left and be the starting of later trouble. I believe very strongly with Dr. Dowd that these cases should be taken when the glands are confined to the upper triangle of the neck, the subparotid group, when the operation is easier to perform and more effective. If you are going to wait and try tuberculin, hygiene without operation, Roentgen ray, heliotherapy and other forms of treatment you are going to let a great many cases progress to tuberculosis which is much more disseminated and much more difficult to cure. At the Children's Hospital in Boston, we get many cases which have gone for two or three years under other forms of treatment and present as the result a large number of sinuses—a difficult situation to handle. In the early cases the results of surgery are most satisfactory. One other point I believe to be worth mentioning is the type of infection. Raw's studies showing that surgical tuberculosis, that is, glandular and bone tuberculosis, does not exist in countries where cow's milk is not used, though phthisis is common, are suggestive. The work of Mitchell of Edinburgh who found that a very high percentage of these cases were due to the bovine type of bacillus is also suggestive that milk may be responsible for the high prevalence of this disease. If further investigations show this to be so the importance of furnishing a nontubercular milk supply becomes apparent.

Dr. Willy Meyer, New York: Dr. Dowd showed that the very beginning of the trouble usually is that group of glands which is situated in the upper triangle of the neck. No doubt if we take these cases in time we will prevent further trouble. The difficulty is that we do not get these cases always at this period. Sometimes we see them with the big chain of glands in front and behind the sternocleido. I do not know a better method if patients have been sick for a number of years and the glands are hard and firmly adherent, than to make, in the male at least, an incision in front and behind the sternocleido and divide the muscle transversely, forming an upper and lower flap. Then taking the internal jugular as a guide we can make a thorough extirpation. In the female we must try to get along in such cases with one incision, posterior to the muscle and not running up so high, to avoid scarring as much as possible. For glands in the upper triangle there is no better incision than the one Dr. Dowd showed. Dr. Morris mentioned conservative treatment, and he touched on Bier's hyperemia. He has seen results follow alternating with heat and cold applications. We can simplify the treatment by having the patient wear an elastic bandage around the neck, an ordinary garter elastic, with a hook sewed on at one end and a number of eyes at the other, for eleven out of every twelve hours. Children as well as grown people do not object to it. On the contrary, it often reduces pain and stiffness. As soon as glands have broken down, aspirate and inject iodoform-glycerin, or stab the abscess and aspirate with a Bier's suction cup. I have seen very good results from this method, even in the presence of hard glands, which is very exceptional.

Dr. Charles N. Dowd, New York: The statement, that glandular enlargements in children's necks tend to subside, must be taken with reserve. The hyperplastic glands do subside; probably some of the tuberculous ones also subside; but the patients about whom this paper is written are the ones whose swellings did not subside. Most of them had had various forms of treatment before we saw them and came to us because the swellings failed to subside under this treatment. A more general understanding of the natural history of the disease is important. Nearly all the patients show the conditions of Group I at the beginning and have a great tendency to pass into the stages shown in Group II and Group III. The question of diagnosis is very important and has led to much confusion. Clinicians who do not remove the lymph nodes have a great tendency to call them tuberculous when they really are simply hyperplastic. I have had many consultations and conversations with them, have read their standards of diagnosis, have seen their patients and have removed some of the hyperplastic nodes at their request. It is manifest that any form of treatment which is applied to hyperplastic nodes is likely to be successful and is misleading if the clinician thinks he has cured tuberculosis. My associates and I have taken great pains to visit clinics where tuberculin is used, since we are earnestly seeking the best way to cure this disease. I can mention one tuberculin clinic where there were more patients than in any other part of the institution to which it belonged and where I saw a whole series of these patients. There was not a single one who seemed to be cured by tuberculin. There were a number of patients who had lumps which needed operation; and there was one who had had a good operation and had only been treated with tuberculin for the induration which followed. The opinion held in that clinic was that when the patients ceased to be hypersensitive to tuberculin they were cured, even if they still had enlarged glands. The difference in opinion as to what constitutes an operation has led to great confusion. Patients are shown as operative failures who never have had thorough operations. The location of the scars makes this certain. The point which I especially wish to emphasize is that it is not fair to let patients drag along from Group I to Group II or III while something is being done which simply hides what is going on within the neck. We ought to take care of these patients in the curable stage, the same as we take care of patients with appendicitis, gallbladder inflammation or kidney stones. Take care of them when you can cure them and do not let them drag along.

OSTEOCLASIS AND OSTEOTOMY*

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CHICAGO

Osteotomy is the oldest and the most popular operation for the correction of severe rachitic deformities of the legs in children, yet it has many disadvantages when compared with osteoclasis performed with the aid of the perfected Grattan osteoclast. Some of its disadvantages are: the production of a compound instead of a simple fracture; time required for operation; the danger of infection which, though it may be slight, nevertheless exists; time, care and expense necessary for antiseptic precautions, and the pain that always accompanies an open wound. But the most serious objection to osteotomy is the delayed union as compared with union after osteoclasis. This is undoubtedly due to the severing of the continuity of the bone shaft and the carrying of soft tissue into the open space with the chisel. This delayed union has frequently to be supplemented by postoperative treatment, which is never required after rapid osteoclasis.

Tubby[1] says that "nonunion after osteoclasis is scarcely, if at all, known, whereas it is seen from time to time after osteotomy."

Neither osteotomy nor osteoclasis should be performed on rachitic bone during the subacute stage. The roentgenogram will show a clearly outlined epiphysis when lime is deposited sufficiently to produce a fair degree of eburnation.

Under favoring conditions of a raw food diet and fresh air, eburnation is usually a process of only weeks or months.

The earliest observers noticed that knockknee produced flatfoot, but the fact practically escapes attention that a mild degree of knockknee, that is just notice-

* Read before the Section on Orthopedic Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Tubby, A. H.: Deformities, Including Diseases of the Bones and Joints, London, 1914.

able in the child, will frequently be sufficient in adult life to throw the center of gravity inside the inner border of the foot and produce a disabling flatfoot. In such cases the only remedy must be a supracondyloid osteotomy, which the adult patient invariably looks on with abhorrence. This emphasizes the necessity of correcting mild knockknees in children when a slight complete in the tibia that it will fracture with a loud snap. Osteokampsis is the name given by Adolph Lorenz to the bending and stretching of bone without fracture.

Fig. 1 (Case 1).—Knockknees producing flat and pronated feet.

Fig. 2.—Roentgenogram in Case 1 two months after an eight second supracondyloid bending without fracture in the Grattan osteoclast.

Fig. 3 (Case 1).—Six weeks after bloodless correction of the knockknees, showing arches of the feet restored.

Figure 1 (Case 1) presents pronounced knockknees, and the roentgenogram (Fig. 2), taken two months after correction by osteokampsis, shows that the lower ends of the femoral shafts took extreme inbends without fracture, and Figure 3 shows the same patient with symmetrical legs and the pronated feet corrected.

Fig. 4 (Case 2).—Bowlegs; patient standing with the feet widely apart in the voluntary attempt to bring the outrolled feet on a plane with the floor.

Fig. 5.—Roentgenogram in Case 2 after an eight second bloodless overcorrection in the osteoclast without fracture.

Fig. 6 (Case 2).—Six weeks after rapid bloodless osteokampsis, showing that both the bowlegs and the abducted feet have been corrected.

supracondyloid bending in the osteoclast will produce an ideal correction. Experience shows that the lower end of the femur will bend in the osteoclast without fracture several years after eburnation has become so

Bowlegs in a child should never be corrected by

osteotomy for the reason that an angular deformity is left, at the point where the chisel entered the bone.

In France I have seen bowleg cases in which attempts had been made to overcome the angularity left by osteotomy by driving the chisel into the bones of the legs at several different locations.

Unfortunate attempts are occasionally made to correct deformities of the legs by osteoclasis or osteotomy of the tibia without fracturing the fibula. The fibula always participates in the deformity, and the unfractured fibula usually neutralizes attempts to lengthen or correct a deformed tibia.

The deformity of bowleg is usually an exaggeration of the normal outbend of the lower femoral shaft, and a more pronounced and long distributed outbend of the tibial shaft.

In osteoclasis for the correction of bowlegs the pressure bar should be placed opposite the apex of the outbend and against the outside of the leg, to insure the prompt bending or fracturing of the fibula at the same time as the tibia. Then a few quick turns of the screw gives the tibia a long distributed inbend curve. Even in well eburnated bones this overcorrection is frequently accomplished sufficiently to rectify the local deformity, and also to neutralize the other outbends without any fracture whatever. When fracture does take place it is only after the bone has bent a long way toward overcorrection, and the roentgenogram will show that the fracture is only subperiosteal and partial. The distributed corrective curve should be held in plaster of Paris for five weeks, and the result will invariably be symmetrical and functionally perfect legs. Figure 4 (Case 2), Bernard G., presents pronounced bowlegs, and the roentgenogram of the case after correction (Fig. 5) shows that the tibias took a long distributed overcorrection inbend without fracture, and Figure 6 of the same case shows symmetrical and useful legs.

All the American textbooks agree that "osteotomy is more satisfactory" for the correction of anterior bent tibias, for the reason that very few operators appreciate the case and rapidity with which anterior bent tibias can be bloodlessly corrected by the modern method of rapid osteoclasis.

For the correction of anterior bent tibias the pressure bar of the osteoclast should be placed opposite the apex of the deformity and against the outside of the leg. The fracture of the tibia and fibula should be in the direction of the least resistance and should be complete in eight seconds, and the deformity corrected by manual force and ready for plaster of Paris in another eight seconds. Symmetrical and functionally perfect legs will almost invariably result.

Figure 7 (Case 3) presents anterior bent tibias; the roentgenogram (Fig. 8), taken two months after correction, shows dark shadows of dense new bone filling the opened spaces in the tibias, and Figure 9 shows the same patient with symmetrical and useful legs.

It should be remembered that any operation that lengthens the leg must be preceded by a tenotomy of the Achilles tendon. If this precaution is neglected, the strong pull of the tendon will prevent a good correction, and a tenotomy will have to be done later to let the heels down to the floor.

Fig. 7 (Case 3).—Anterior bent tibias.

Fig. 8.—Roentgenogram in Case 3 taken two months after correction, showing dark shadows of dense new bone filling opened spaces in the tibias.

Fig. 9 (Case 3).—After rapid bloodless osteoclasis, showing symmetrical and useful legs.

Osteotomy is the only available operation for the correction of bone deformities of all patients over 12 years of age, and when the bones have been eburnated to an abnormal strength.

In adult life the soft parts do not stretch as readily and the bones have lost the pliability of childhood.

For the correction of anterior bent tibias in the adult, cuneiform osteotomy is the only practical operation.

For the correction of knockknees in the adult the McEwen supracondyloid osteotomy is usually preferred.

Figure 10, Nettie Z., aged 13 years, came into the service of Drs. Blanchard and Parker at the Home for Destitute Crippled Children, showing an anomalous case of neglected rachitic deformity with the general appearance of bowlegs and a tilt of the body to the right. The lower ends of the femoral shafts were twisted full 90 degrees, so that the patellas looked

directly outward. There was a marked anterior bend in the lower third of the shaft of the right femur, but both tibias remained normally straight. When the patient flexed either knee the foot came up in front of the opposite leg, making locomotion impossible. After supracondyloid osteotomy the condyles were rotated inward 90 degrees and the legs put into plaster of Paris in a straight position with the condyles of the right femur tilted forward. When the plaster was removed six weeks later, the legs were found to be symmetrical, and locomotion was perfect.

It is the position in which the legs are put in plaster of Paris after either an osteotomy or osteoclasis that determines both the anatomic and functional result.

While osteotomy has a broader field of usefulness than osteoclasis, there should be a more universal appreciation of the fact that a slight bending of the pliable bones of young children will usually correct bad rachitic deformities of the legs, and that they should not be unnecessarily subjected to the more severe and trying operation.

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ABSTRACT OF DISCUSSION

DR. J. TORRENCE RUGH, Philadelphia: I have nothing but commendation for the paper and there are one or two points in it that should be emphasized. One is that if the bones, in osteoclasis, are not entirely fractured, overcorrection must be the rule. It has been my experience that unless the bone is bent to the position of overcorrection, there is so much tension of the soft parts afterward that pressure-sores may develop over the bony parts. Another point is that for the general surgeon, or the man who is not so well equipped in paraphernalia as is a man who confines his work entirely to orthopedic surgery, the possession of an osteoclast is not always possible and may not always be necessary. For such individuals, I think that the operation of osteotomy will prove just as satisfactory as osteoclasis. A bone may be bent after it has been partially severed, and if the osteotome is driven through one half of the bone, the rest of the bone, by careful twisting with the hand, may be bent in the manner desired. For an outward bend, the inner plate should be cut through, and vice versa. In this manner, an incomplete fracture may be secured with the osteotome as well as by an osteoclast; and the result is as satisfactory in every way. The disadvantage of an open wound is practically a negative one. There is one criticism that I wish to offer. It is a plea for the presentation of photographs of these reported cases in such a way that the audience can get a true estimate of them.

DR. CHARLES A. PARKER, Chicago: Dr. Blanchard spoke of the rarity of nonunion in osteoclasis. I have a case that is not united yet. It was put in position after simple osteoclasis, without difficulty, and without any displacement; but it has not united yet, after two or three years. As to the number of bones that may be broken at one time, it was set at four by Dr. Blanchard. Recently, however, in a little colored girl, who had an anteriorly bent tibia and knock-knees, we broke both bones in the right leg, both bones in the left, and both thigh bones at one operation. She is doing well.

DR. EDWIN W. RYERSON, Chicago: There is one point about osteoclasis that should be realized, and that is, that we cannot do it in all bow-leg cases, because a certain number of these cases have the bend so low in the tibia that it is not safe to use the osteoclast. In cases in which the deformity is very low, the osteoclast may slip over the end of the bone and injure the joint, so that it is better in these cases to do an osteotomy. I do not like to do osteoclasis on the femur. We cannot get the line of fracture quite close enough to the lower end of the femur. I have felt that there was danger in doing an osteoclasis of the lower end of the femur; and it has, therefore, been my custom, for seventeen or eighteen years, to do an osteotomy in all cases of knock-knees with the deformity in the femur. I have seen no nonunions or infections, or any other untoward result whatever, and I regard this procedure as just about as safe, except on theoretical grounds, as osteoclasis. The Rizzoli osteoclast is much slower than the Grattan. It used to be employed in the Children's Hospital in Boston. The Grattan osteoclast, which we use in Chicago, is excellent. I have used it in many cases, and do not hesitate to employ it in the cases of children up to the age of 12 years. I used it a few days ago in the case of a strong girl of 12 with eburnated tibias and in this instance, it made a slight tear in the skin over the tibia. This has never before happened with me, but I have seen other surgeons make slight tears in the skin with osteoclasts. Of course, such a lesion in skin that is unprepared, as is the case when osteoclasis is performed, is more serious than is a skin wound by a chisel or knife when the surface has been thoroughly prepared for operation.

Fig. 10 (Case 4).—Rachitic twisted femurs simulating bowlegs.

Fig. 11 (Case 4). — After a McEwen osteotomy and redressment, showing symmetrical and functionally perfect legs.

DR. ROLAND MEISENBACH, Buffalo: I was interested to hear Dr. Blanchard say that osteoclasis could also be applied to the antero-posterior bow-legs. Owing to the tensity of the Achilles tendon, I have been in the habit of doing osteoclasis on lateral bow-legs and using the osteotome on antero-posterior. I believe it is quite possible to do the osteoclasis near the epiphysis, if one is careful in the use of the osteoclast. I use the Grattan osteoclast, and the success of much of the work depends on the quickness and power of the osteoclast; also on the quickness with which the operator stops the osteoclast after correction has been established. For this reason, I have had my osteoclast so modified that its handle is dumb bell shape, giving greater force and momentum to the machine. I believe osteoclasis has many advantages over osteotomy in many instances.

DR. EDWARD S. HATCH, New Orleans: In my part of the country we have bow-legs and knock-knees always with us. I have been doing about half of my cases by osteoclasis and

half by osteotomy, and have not been able to see any marked difference in the results. In small children, I break the bones by hand and the results seem to be as good as those from osteoclasis.

DR. WALLACE BLANCHARD: Rachitic deformities have fallen off about 60 per cent. in Chicago since immigration has declined on account of the war. The children that are brought from warm climates to America get along well and do not develop rickets, but the children born of recent immigrants from Italy and Greece develop severe rickets. I found, at one time, that 50 per cent. of all of our cases came from Italy, Greece and Syria. We get many rachitic deformities in colored children coming from the far South. Concerning correction and overcorrection, we put up severe cases of bow-legs so that they look like knock-knees while they are in plaster, so thoroughly are they overcorrected, and we put up knock-knees so that they look like bow-legs in plaster. A good share of the apparent overcorrection is lost in the plaster and under the cotton lining of the plaster. In regard to nonunion: The roentgenograms show a well-defined epiphysis when the case has eburnated sufficiently to be past the danger of rachitic nonunion. Dr. Parker's case was probably still in the subacute stage. That was very likely the reason why he got nonunion, although the boy was old enough for complete eburnation to have occurred.

LUES MALIGNA

WITH REPORT OF TWO CASES

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In spite of the voluminous and often redundant literature on syphilis in our day, there is a significant lack of mention of that fulminant type of syphilis which we designate "lues maligna."

During the past five months, two patients with lues maligna have been admitted to the wards of the Rochester Municipal Hospital. Through the courtesy of Dr. George W. Goler, attending physician, and health officer of Rochester, N. Y., I am able to report the following histories:

CASE 1.—Two years before the patient, M. G., girl, aged 9 years, was born, her father contracted syphilis. For the past year, he has been confined in a hospital for the insane, with a diagnosis of paresis. The mother admits a history of chronic sore throat and general alopecia, but denies any eruption, condylomas, etc. A Wassermann test, made on the mother in January, 1916, was 1 plus. The patient was born at term after an uneventful labor. Until 7 years of age, she appeared to be a robust, healthy child. Two years ago, the mother noticed that the glands in the neck were enlarged. However, the general health was unaffected. One year later, the removal of adenoids and hypertrophied tonsils was advised. Shortly after the operation, a chronic serous nasal discharge developed. The fauces remained slightly inflamed, and there was continuous slight sore throat. The condition remained the same for about six months. The nasal discharge persisted in spite of continued treatment. Ten months after the tonsillectomy, and two months before her admission to this hospital, the nasal discharge began to be purulent, and, as the mother said, "matter seemed to come from between her teeth." The odor was that of necrotic tissue. Several small pieces of bone were discharged from a sinus that had formed in the palate. After this, there was a regurgitation of liquids through the nose. Shortly after her admission to the hospital, the entire alveolar process on the left side of the superior maxilla separated en masse. A Wassermann test, made on her entrance into the hospital, was plus 4, reaction complete. She received 0.45 gm. of salvarsan, and inunctions of mercurial ointment thrice daily.

Lesions in Case 2.

Salvarsan was administered five times at intervals of about two weeks. The amount given varied from 0.4 to 0.5 gm. One month after her admission, the uvula, pillars of the fauces, and the posterior wall of the pharynx became necrotic. Toward the end, deglutition became impossible; there was continuous slight hemorrhage. Death occurred three months after entrance into the hospital, and one year after the removal of the tonsils and adenoids. About one week before death, the left cheek became necrotic, and a sinus communicated with the oral cavity. This area of necrosis was spreading rapidly. Necropsy was not permitted.

CASE 2.—W. E., man, aged 42, colored, single, porter in hotel, whose father was dead, of unknown cause, whose mother, two brothers, and two sisters were living and well, and one brother died in infancy of unknown cause, had pertussis in childhood; but otherwise had always been well. He used alcohol and tobacco to excess. Twenty years before admission, a sore appeared on the glans penis. He was told that he had syphilis, and treatment by mouth was begun and kept up for nine months. He had received no specific medication since that time. He denied any history of eruption, alopecia, condylomas, or other manifestation of syphilis other than the history of the primary lesion.

About six weeks before admission, he consulted a physician for the relief of a mild sore throat. There seemed to be some purulent material in the crypts of the tonsils. These areas were touched with a silver nitrate stick, and an antiseptic gargle was prescribed. The condition seemed to improve under this treatment. Three weeks later, he returned to his physician complaining of pain in the wrists and ankles. The temperature was 101. He was ordered to bed, and salicylates were given in moderate doses. It was thought that the sore throat and pain were of rheumatic origin. Three days after, a necrotic odor was noticed on the breath. An examination of the throat revealed an area of necrosis on the tonsils, and a partial destruction of the uvula. When the throat became involved the second time, a few scattered purpuric spots appeared on the legs and trunk. These purpuric areas increased in number and size. They were more numerous on the arms, legs and back. There was no pain or itching.

Two weeks later, a purulent discharge was seen to escape from beneath the prepuce. The prepuce could not be retracted. Two days after the discharge was first noticed, a small necrotic area appeared on the dorsum of the prepuce. This spread rapidly, until it involved the entire prepuce, part of the glans, and nearly all of the shaft of the penis. Five days before admission, several large bullae developed on the inner surface of both thighs. These were opened, and rapidly became deep, sloughing areas. For the past three days, there had developed a marked mental slowness. At his previous visits, the physician had considered him to be of normal mentality.

The white cell count was 12,000; the differential count gave polymorphonuclears, 77 per cent.; small lymphocytes, 16 per cent.; large lymphocytes, 6 per cent.; eosinophils, 1 per cent. Five c.c. of blood were mixed with 75 c.c. of glucose bouillon and incubated for three days. There was no growth at the end of that time. Until this time, a possible syphilitic cause was not considered. The history of infection twenty years

before had not been obtained. A Wassermann test was found to be strongly positive. He was now admitted to the hospital.

Salvarsan, 0.6 gm., was given, and massive doses of mercury were ordered to be given by inunction. In the following five days, there was total destruction of tonsils and uvula. A deep slough appeared on the posterior part of the dorsum of the tongue and on the inner side of the cheek opposite the last left molar tooth. The ulceration extended forward until nearly the entire tongue became necrotic. The palate was breaking down, and a sinus into the nose was being formed. During this time, the ulcerative process destroyed the glans penis and part of the corpus cavernosum. The corpus spongiosum was unaffected, and micturition remained normal until death. The heart sounds indicated great myocardial degeneration; there were no valvular murmurs. The urine showed considerable albumin with hyaline and granular casts.

Necropsy was performed twelve hours after death. The pleura and peritoneum were normal. The lungs were very edematous, with several hemorrhagic spots on the lower surface of the right lung. The heart muscle was much degenerated. The valves were normal. There was an area of aortitis 2 by 4 cm. at the beginning of the aorta. The liver was slightly cirrhotic, the capsule not adherent. The spleen was very light in color and much softer than normal. The right kidney was hypertrophied (compensatory?). There was moderate parenchymatous nephritis. The left kidney was entirely cystic. There was no trace of kidney substance. Smears, made from the liver and spleen, and stained with silver nitrate after the method of Stern, showed the presence of the *Spirochaeta pallida*.

In these histories, several interesting features are common to both:

1. They fulfilled the requirements of our definition of lues maligna: the great destruction of tissue with symptoms of a toxemia, and the total absence of response to antisyphilitic medication, however vigorously employed.

2. In each, there was a long period of apparent good health followed by a rapid development of late syphilitic manifestations.

3. In each, the tonsil was the starting point of the illness and of the necrotic process.

4. In each, the severe systemic disturbance and the rapid destruction of tissue were preceded by traumatism to the tonsil or peritonsillar structures; in one case mechanically by the tonsillectomy, and in the other by the application of the caustic.

Did nests of the spirochetes lie dormant, or perhaps encysted in the tonsil, needing only the irritation and trauma to force them into the blood or lymph channels? The blood culture showed the absence of the ordinary bacteria of suppuration, while the presence of the spirochete must point conclusively to a pure syphilitic infection.

However, some other condition is also operative to produce the clinical picture. Probably, we must conceive a different strain of the spirochete of greater virulence, or a natural or acquired lack of defense on the part of the organism, humeral or cellular.

War Mortality.—Of the Boer War (1899-1901) only two features need be noticed. First, that typhoid attacked 57,684 men and killed 8,022, while the Boers only killed 7,781. Bacteria were more deadly than bullets, as Osler has said. Secondly, the modern missile was for the first time in general use, with the result that instead of about 15 per cent. of the wounded losing their lives, only about 8.8 per cent. died. The wounds from the new missile were much less severe and healed more quickly than ever before. The first aid packet also had come to the aid of the soldier.—W. W. Keen, Before and After Lister, *Science*, 1915, xli, 845.

INTRASPINAL INJECTIONS OF MAGNESIUM SULPHATE IN DELIRIUM TREMENS *

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This is a preliminary report based on the study of twelve cases of delirium tremens occurring in the Philadelphia General Hospital. The suggestion for this treatment came from the relief given a patient suffering with tetanus who had marked delirium and considerable excitability, followed by recovery.

In the cases treated, lumbar puncture was performed and varying quantities of cerebrospinal fluid were removed according to the amount of pressure found. The amount removed varied from 10 to 40 c.c. After removal of the cerebrospinal fluid, a cubic centimeter for every 25 pounds of body weight of a 25 per cent. solution of magnesium sulphate, at a temperature ranging between 95 and 100, was introduced by means of a cubic centimeter syringe, through the lumbar puncture needle into the canal. These treatments were all given with the patient in a sitting posture. After the introduction was completed, the patient was returned to a semirecumbent position. No patient received a second treatment. All these patients required almost constant attention for twenty-four hours after the treatment was instituted, careful attention being paid to the nourishment, bladder and rectum. There were ten recoveries and two deaths. It might be mentioned that the chemically pure magnesium sulphate was used and was specially prepared in ampules. A digest of the clinical histories of three cases may prove of interest.

REPORT OF CASES

CASE 1.—R. H., man, aged 38, admitted Nov. 24, 1915, meat cutter by occupation, weight 150 pounds, before admission had been drinking for a little over a week, on an average, ten whiskies a day. He was markedly hallucinatory, could neither sleep nor eat, and was extremely nervous. The family history had no bearing on the present trouble. The patient was noisy, talkative, rambled incoherently, and had marked motor restlessness and tremors of the lips, tongue and extremities. He required mechanical restraint. No physical disorder was found. The knee reflexes were slightly exaggerated. This was a fully developed case of delirium tremens.

November 25, delirium and motor restlessness continued. Sedatives were administered with little results and restraint continued. November 26, the patient's condition was unchanged from that of the 25th. At 5:30 p. m. lumbar puncture was performed and 20 c.c. of cerebrospinal fluid removed. Six c.c. of a 25 per cent. solution of magnesium sulphate were introduced. At 6:40 p. m. the patient had developed an inability to raise either limb on command, but gripped the hand with a powerful grip when told. There was no loss of consciousness. Pain and touch senses were almost abolished, but the patient was sensible to deep pressure. Both knee reflexes and plantar reflexes were abolished. The patient slept during the night. When aroused he could speak only in whispered tones. There was relaxation of bladder and rectum. November 27, he was entirely quiet and rational. There was gradual restoration of function and reflexes during the day. The patient continued to do well, with no after-effects. December 6, he was discharged from the hospital cured. This case, in a general way, illustrates the clinical course of the patients who developed the paraplegic state. In the remaining cases there was weakness with diminished reflexes.

CASE 2 is one in which an attack of delirium tremens had certainly been aborted. T. B., man, aged 30, stevedore by

* Read before the Philadelphia Neurological Society, Dec. 17, 1915.

occupation, white, weight about 160 pounds, admitted to the hospital Nov. 17, 1915, began to use intoxicating liquors at 15 years of age. For the past six months had indulged more freely. He drank in all a pint of whisky a day. Two days before admission, he began to feel sick, shaky and restless, had marked insomnia, could eat very little, had hallucinations of hearing of an obscene character, and also had hallucinations of sight. He said that if he could take another drink these voices would leave him. In the evening of the 17th this patient was admitted to the Psychopathic Ward of the Philadelphia General Hospital in an extremely restless condition with hallucinations both of hearing and of sight. Motor restlessness was so extreme that he had to be restrained. November 18, in the morning, restraints were removed, but the patient still continued restless and had tremors about the lips and fingers on extension. He had had no sleep the night before. He also continued hallucinatory. At 3 p. m. lumbar puncture was performed, and 30 c.c. of clear cerebrospinal fluid were removed under pressure and 7 c.c. of a 25 per cent. solution of magnesium sulphate were introduced. On the evening of this day, he showed some weakness of the lower limbs, and both the plantars and knee reflexes were diminished. There was no involvement of bladder and rectum. The patient was not unconscious, but was inclined to be a little restless, not sufficiently, however, to require restraint.

Next morning the patient was rational, all the hallucinations had disappeared, and during the day there was complete restoration of function and reflexes. December 9 the patient was discharged from the hospital. There were no after-effects.

Case 3.—M. D., man, aged 43, weight 180 pounds, was admitted Dec. 13, 1915, with a marked case of delirium tremens. This patient's mental condition precluded the possibility of obtaining a history. The history accompanying the patient did state that "yesterday he had 2 grains of morphin sulphate, one fiftieth grain of hyoscin hydrobromate, and 3 ounces of the syrup bromidum. Added to this, he received 10 grains of trional and 2 drams of paraldehyd." On admission, he was in a low muttering delirium, with marked tremors and motor restlessness, and pin point pupils. The skin was warm and dry and there was suppression of urine.

December 14, at 11 a. m., lumbar puncture was performed and 25 c.c. of cerebrospinal fluid were removed and 4 c.c. of magnesium sulphate introduced. This small quantity of solution was given because of the weakened condition of the patient, despite his extreme restlessness. In two hours a paraplegic state developed. The patient died twelve hours after the treatment.

SUMMARY OF TWELVE CASES

Seven of the twelve patients developed a paraplegic state in from one to two hours following the introduction of the magnesium sulphate with lost knee jerks, lost plantar reflexes, and relaxation of both sphincters. The return of partial function occurred in from twelve to twenty-four hours after the development of the paraplegic state, with the gradual return of the reflexes and complete motor power. Complete restoration of reflexes and function occurred usually in from thirty-six to forty-eight hours.

The remaining five patients had weakness of the lower limbs with lessened reflexes. These patients usually suffered from retention of urine. Other constitutional disturbances noted were that the temperature rose from 1 to 3 degrees, and the respiration became more rapid and shallow. There was also some acceleration of the pulse. Those patients who had developed a paraplegic state could only speak in whispers. In others there was no change in voice sounds.

The rapidity with which the delirum and restlessness subside, with restoration to the normal within twenty-four hours following this treatment, is certainly of value, in view of the little good sedatives do and of the high mortality among these cases.

Therapeutics

BLOOD PRESSURE

(Continued from page 436)

ALTITUDE

It has long been known that altitude increases the heart rate and tends to lower the systolic and diastolic blood pressures; that these conditions, though actively present at first, gradually return to normal, and that after a prolonged stay at the altitude may become nearly normal for the individual. Bürker[30] showed that altitude increases the red blood cells from 4 to 11.5 per cent., and the hemoglobin from 7 to 10 per cent. The greatest increase in these readings is in the first few days. It has also been shown that with every 100 mm. of fall of atmospheric pressure there is an increased hemoglobin percentage of 10 per cent. over that at the sea level.[31]

Schneider and Havens[32] find that in low altitudes abdominal massage increases the red corpuscles, and the percentage of hemoglobin in the peripheral vessels. While there is thus apparently a reserve of red corpuscles while the individual is in a low altitude, in a high altitude they find such reserve to be absent; in other words, abdominal massage did not cause this increase in red corpuscles in the peripheral vessels. This absence of reserve is easily accounted for by the fact that after one reaches the high altitude there is an increase in red corpuscles and hemoblogin in the peripheral blood.

Schneider and Hedblom[33] showed that the fall in systolic pressure at altitudes is greater and more certain than the fall in diastolic, some individuals even having a rise in diastolic pressure. This rise in diastolic pressure is probably caused by dyspnea.

Schrumpf,[34] on the other hand, finds that normal blood pressure is not much affected by an ascent of about 6,500 feet, while patients with arteriosclerosis and hypertension, without kidney disease, have a fall in pressure. A patient with coronary disease should certainly not go to any great altitude, while patients with compensated valvular lesions, he found, were not injured by ordinary heights. He found that altitude seemed to decrease high systolic and diastolic pressures, while it even elevated those which were below normal, and caused these patients to feel better.

Any person who has a circulatory disturbance, and who must or does go to a higher altitude, should rest for a series of days, until his blood pressure and blood have reached an equilibrium.

Smith[35] made a series of observations on blood pressures at Fort Stanton, which has an altitude of 6,230 feet. He took the blood pressure readings in fifty-four young adults, seventeen of whom were women, and found that the average systolic reading in the men was 129 mm., and in the women 121, while the average diastolic in the men was 84, and in the women 82. Therefore he agrees with Schrumpf that the effect of altitude on normal blood pressure has been overestimated. In tuberculosis he found that the effect of

30. Bürker, K.; Jooss, E.; Moll, E., and Neumann, E.: Ztschr. f. Biol., 1913, lxi, 379. The Influence of Altitude on the Blood, editorial, The Journal A. M. A., Nov. 1, 1913, p. 1634.
31. Blood and Respiration at Moderate Altitudes, editorial, The Journal A. M. A., Feb. 20, 1915, p. 670.
32. Schneider and Havens: Am. Jour. Physiol., March, 1915.
33. Schneider and Hedblom: Am. Jour. Physiol., November, 1908.
34. Schrumpf: Deutsch. Arch. f. klin. Med., 1914, cxiii, 466.
35. Smith, F. C.: The Effect of Altitude on Blood Pressure, The Journal A. M. A., May 29, 1915, p. 1812.

altitude was not great. He does not believe that this amount of altitude, namely, a little more than 6,000 feet, makes much difference in an ordinary tuberculous patient. He did not find that artificial pneumothorax made any important change in the blood pressure. His findings do not quite agree with Peters and Bullock,[36] who studied 600 cases of tuberculosis at an altitude of 6,000 feet, and found the blood pressure was increased, both in normal and in consumptive individuals. They also found that the increase in blood pressure, which kept gradually rising up to a certain limit, was indicative that the tuberculous patient was not much toxic; therefore the increase in blood pressure was of good prognosis.

CONDITIONS CAUSING CHANGE IN BLOOD PRESSURE

Woolley[37] quotes Starling as finding that the blood vessels dilate from physical and chemical changes in the musculature, and that this dilatation is caused by deficient oxidation and accumulation of the products of metabolism, including carbon dioxid. This dilatation ordinarily is transient and not associated with exudation, but in inflammation the dilatation is persistent and there is exudation. The carbon dioxid increase during exercise stimulates a greater circulation of oxygen in the tissues which later counteracts the normal increase in acid products. In inflammatory processes, however, the acid accumulates too rapidly to allow of saturation. In this case the circulation becomes slowed and the cells become affected.

Besides these changes in the blood vessels of the muscles, the general blood pressure becomes raised on exercise, the heart more rapid and the temperature somewhat elevated, and the breathing is increased. This increased heart rate does not stop immediately on cessation of the exercise, but persists for a longer or shorter time. The better trained the individual, the sooner the speed of the heart becomes normal.

Benedict and Cathcart[38] have found that the increased absorption of oxygen, showing increased metabolism, persists after exercise as long as the heart action is increased.

Newburgh and Lawrence[39] have found that increased temperature in animals, equal to that occurring in persons suffering with infection, reduces the blood pressure, causing a hypotension. This shows that high temperature alone in an individual sooner or later causes hypotension.

Although prolonged pain may cause a fall of blood pressure from shock, the first acute pain may cause a rise in blood pressure, and Curschmann[40] found that the blood pressure was high in the gastro-intestinal crises of tabes and in colic, and that the application of faradic electricity to the thigh could raise the blood pressure from 8 to 10 mm. in normal individuals.

The positive effect of decomposition products in the intestine, more especially such as come from meat proteins, is well recognized; but the importance, in high pressure cases, of the absorption of toxins derived from imperfectly digested food remaining in the bowels over night is not sufficiently recognized. Patients with high blood pressure should not eat a heavy evening meal, and especially should they not eat meat. Willson[41] well describes the condition caused by the absorption of these toxins. If the heart muscle is intact, he finds such absorption in high pressure cases will show diastolic as well as systolic increase:

> The vessels pulsate and throb; the skin is pale; the head aches; the tongue is coated; the breath is foul; vertigo is often distressing; and not infrequently the hands and feet feel distended and swollen. A thorough house-cleaning of the gastro-intestinal canal causes the expulsion of the offending substances and the expulsion of gas, whereupon the blood pressure often resumes its normal level and the symptoms disappear.

Wilson suggests that not only the meat proteins, but also the oxyphenylethylamin in overripe cheese may often cause this poisoning; and cheese is frequently eaten by these people at bedtime. Of course if any particular fruit or article of food causes intestinal upset in a given individual, they should be avoided.

When the heart is hypertrophied in disease, the cavities of the ventricles are probably also generally enlarged, and therefore they propel more blood at each contraction than in normal persons and thus increase the blood pressure.

The blood pressure is raised not only by intestinal toxemia and uremia, but also by lead poisoning and the conditions generally present in gout.

It has been pointed out by Daland[42] that nervous exhaustion may raise the blood pressure in those who are neurotic, and he finds that this hypertension may exist for months in some cases. On the other hand, in neurasthenics the blood pressure is generally lowered. As he points out, there is often a very great increase in the systolic blood pressure at the menopause, while the diastolic pressure may not be high. This makes a very large pressure pulse. This suggests the possibility of disturbances of the glands of internal secretion. This hypertension is generally improved under proper treatment.

Schwarzmann[43] studied the blood pressure in eighty cases of acute infection, and found that a high diastolic blood pressure during such illness indicates a tendency to paralysis of the abdominal vessels, and hence a sluggish circulation in the vessels of the abdomen. He found that in seriously ill patients this high diastolic pressure is of bad prognosis. He also found that a lower systolic pressure with a lower diastolic pressure is not a sign that the heart is weakening, but only that the visceral tone is growing less. On the other hand, when the diastolic pressure rises while the systolic falls, this is a sign of failing heart.

Newburgh and Minot[44] find that the blood pressure course in pneumonia does not suggest that there is a failure of the vasomotor center. They found that "low systolic pressures are not invariably of evil omen." They also found that the systolic pressure in fatal cases is often higher than in those in which the patients recovered, and they found that the rate of the pulse is more important in determining the treatment than the blood pressure measurements.

The work which has been described under this section is of interest as indicating the newer experimental work on the physiology of blood pressure. Much of it is new, however, and it is difficult to draw absolute therapeutic conclusions from the evidence offered.

(To be continued)

36. Peters, L. S., and Bullock, E. S.: Blood Pressure Studies in Tuberculosis at a High Altitude, Arch. Int. Med., October, 1913, p. 456.
37. Woolley, P. G.: Factors Governing Vascular Dilatation and Slowing of the Blood Stream in Inflammation, THE JOURNAL A. M. A., Dec. 26, 1914, p. 2279.
38. Benedict and Cathcart: Pub. 77, Carnegie Institute of Washington.
39. Newburgh, L. H., and Lawrence, C. H.: The Effect of Heat on Blood Pressure, Arch. Int. Med., February, 1914, p. 287.
40. Curschmann: München. med. Wchnschr., Oct. 15, 1907.
41. Willson, R. N.: The Decomposition Food Products as Cardiovascular Products, THE JOURNAL A. M. A., Sept. 25, 1915, p. 1077.
42. Daland: Pennsylvania Med. Jour., July, 1913.
43. Schwarzmann: Zentralbl. f. inn. Med., Aug. 1, 1914.
44. Newburgh, L. H., and Minot, G. R.: The Blood Pressure in Pneumonia, Arch. Int. Med., July, 1914, p. 48.

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SATURDAY, AUGUST 12, 1916

A CHAPTER IN THE HISTORY OF THE NERVOUS SYSTEM

Abraham Jacobi has remarked that in America the history of medicine is almost never taught, and that as long as our universities do not teach it, the pupils feel encouraged to neglect it. Many reasons might be urged for the study of the history of science. It gives some idea of how men who have accomplished things have lived and thought and worked. It furnishes a perspective view of the way in which the medical disciplines, like others, have come into their present form. The continuity of development in science is brought to light. A medical historian has intimated that the history of medicine furnishes valuable and fruitful lessons of what not to do — lessons often neglected so that the same gross errors have been repeated over and over. Clifford once remarked that scientific thought is human progress itself; and few experiences can furnish a more wholesome reminder of the limitations of human knowledge and, above all, of the importance of rejecting superstition and maintaining the open mind, than the stories of the development of scientific truth. There is a tendency even among devotees of medicine to acquire an attitude of complacent belief in current doctrines and therapeutic procedures. This never makes for advancement either in the science of medicine or in the arts of practice. History serves to recall the need of the tolerant point of view and the willingness to listen to the new without preliminary bias.

Langley has remarked that the death of a theory is often not due to its being definitely disproved, but to the general progress of scientific knowledge which robs it of its credibility; it was in this way that the theory of "animal spirits" died. He has recently prepared a sketch of the progress of discovery in the eighteenth century as regards certain portions of the nervous system.[1] Great are the changes that have occurred in the intervening years! We are taken back to the days two hundred years ago when it was the current belief that all the nerves of the body had their origin in the brain and that the brain was the sole source of nervous influence. There had already been a theory of the nature of nerve influence which regarded the nerves as tense cords; and nervous influences were oscillations or vibrations set up in them. But the theory generally adopted and handed down to the eighteenth century physicians as to the nature of the nervous influences was that the brain concocted, or secreted from the blood, an attenuated "subtle" fluid which it forced down small tubes in the nerves, the tubes being too small to be visible. The fluid was spoken of as "animal spirits." Earlier the term had meant the vapor or emanation of the "animus or rational soul"; at this time animal spirits were simply the medium by which the mind and body influenced one another. There was no sort of agreement, says Langley, as to the way in which the nerves caused motion; whether by the animal spirits setting up fermentation with something in the muscle fibers, or with something in the blood, or by the animal spirits flowing into the muscle and distending it, or in other ways.

The new century led to progress with the abandonment of the older doctrines. The nature of the nervous influence was now acknowledged to be unknown, but it had been suggested that it was of the nature of electricity; it was spoken of as nervous power or vis nervosa. The peculiar functions of the sympathetic nervous system, and what has latterly been described as the autonomic or visceral system, began to be considered. The latter means the nervous system of the glands and of the involuntary muscles; it governs the "organic" functions of the body. In 1727 Petit contested the cerebral origin of the intercostal nerve — sometimes but not usually called the great sympathetic. Before long it was maintained that this nerve sent fibers to the viscera, the glands and the blood vessels; and the viscera received nerves also from the vagus and from the sacral nerves. The intercostal also sent fibers to the diaphragm, and by some it was held that the movement of the diaphragm in sleep and other similar involuntary motions were carried out by way of the intercostal nerve.

For the most part nerves were supposed to run through the ganglia to their terminations, forming in them a special kind of nerve plexus; but some believed that a new organization occurred in the ganglia, and that new nerve fibers were sent off from them. Except on anatomic grounds, there was no definite distinction between spinal and other ganglia. In order to account for the absence of voluntary control over the viscera, and the absence of feeling in them normally, the theory had been put forward that the ganglia prevented nerve influence below a certain intensity from passing through the nerves. The idea that the nervous ganglia were "small brains" dates from Winslow, 1732.

1. Langley, J. N.: Sketch of the Progress of Discovery in the Eighteenth Century as Regards the Autonomic Nervous System, Jour. Physiol., 1916, L, 225. Most of the facts cited above regarding the history of the physiology of the nervous system are taken from this paper.

Whytt, 1751, brought clinical experience largely to bear on the problems of the autonomic nervous system. He used the more neutral term "nervous power or influence" for "animal spirits," and he stated definitely that it was prepared in the spinal marrow as well as in the brain. He accounted for the different duration of life of different parts of the body, after removal from it, by differences in the constitution of the nerves, so that the nervous power contained in them lasted unequal times in different cases. He considered that in normal life there was a constant flow of nervous power to the muscles and to the sphincters of the bladder or anus, keeping them in a constant state of tension.

Haller, 1752, brought out the differences between the sensitiveness of the viscera on the one hand, and of the skin and muscles on the other. In addition to these claims regarding sensibility, he formulated the theory that contraction could be brought about by stimuli without the intervention of nerves, or of any other intermediary agent. It is interesting to note in passing that the effect of strong emotions and passions on the vital organs was considered by Johnstone, 1771, to be due to the impressions on the brain being much more violent than those set up by the will, and thus the nervous power was able to pass through the ganglia.

Langley reminds us that at the end of the eighteenth century the theory that the brain was the ultimate source of nervous power was still held, and perhaps generally held; but it had received a considerable shock from further cases recorded a little after the middle of the century and at later times, of full term fetuses having apparently normal viscera, nerves and muscles, but having no brain.

There were comparatively few new experiments contributed to physiology during the century under review. The galvanic method of stimulation was still to make its great contribution in subsequent years and pave the way for the modern conceptions of the innervation of the viscera.

THE SIGNIFICANCE OF AMMONIUM SALTS IN NUTRITION

Living objects are distinguished from the lifeless by the possession of certain properties which the latter lack. Protoplasm, the physical basis of living things, may exhibit irritability, movement, growth and metabolism whether it be in the cells and structures of animals or in those of plants. Living matter, Mathews writes, is a substance found in all living things, essentially the same in all, but differing somewhat in its physical appearance and chemical composition in each particular kind of cell. The physical and psychologic complex of phenomena to which is given the collective name of "life" is associated always, so far as we know, with this substance, although each individual property may be independent of it. With the development in biology of this somewhat unified point of view has come a natural tendency to observe the fundamental similarities between animals and plants. Thus it has been remarked that the contrast which seemingly exists between these groups of living organs consists merely in the facts that in the animal organism the processes of oxidation and splitting are predominant, whereas in the plant chiefly those of reduction and synthesis have thus far been studied.

Doubtless there is no extremely sharp boundary line between animals and plants, the differences being more of a quantitative than a qualitative kind. It has presumably been under the influence of this idea that a number of present-day investigators have at various times begun studies of the value of nitrogen in the form of ammonia as a protein sparer or protein former in the animal organism. In this country the problem has been attacked in particular by Underhill[1] at Yale University. His work indicates that in any consideration of the influence of ammonium salts on intermediary metabolism a distinction must be recognized between ammonium salts of organic acids and those of inorganic nature. The ability of the organism to dispose of these two types of salts is radically different. All of the inorganic ammonium salts tested and some of those of organic nature cause a distinct excess of total nitrogen output over the normal. These salts apparently stimulate nitrogenous catabolism. In the case of salts like ammonium citrate or ammonium acetate, however, the nitrogen usually does not reappear as ammonia in the urine. It may be converted into urea or may be temporarily retained in some form.

These facts have lately been corroborated by Caldwell and Clotworthy.[2] Thus they found, with respect to the manner in which the extra ammonia nitrogen taken with the food or injected into the body is excreted, that the mode of elimination depends on the ammonium salt employed, and apparently on the ions into which the ammonium salt is dissociated. For instance, the added nitrogen in the case of ammonium acetate is excreted in the form of urea. In the case of ammonium chlorid and ammonium phosphate, it is excreted both as urea and as ammonia. The acetic acid derived from ammonium acetate is a much weaker acid than the hydrochloric acid, or the phosphoric acid derived from the ammonium chlorid and ammonium phosphate, respectively. The body does not find it necessary to protect itself by the production of ammonia, to neutralize the acetic acid, but it is com-

1. Underhill, F. P.: Studies on the Metabolism of Ammonium Salts, I, The Elimination of Ingested Ammonium Salts in the Dog upon an Adequate Mixed Diet, Jour. Biol. Chem., 1913, xv, 327; II, A Note on the Elimination of Ingested Ammonium Salts During a Period of Prolonged Inanition, ibid., p. 337. Underhill, F. P., and Goldschmidt, S.: III, The Utilization of Ammonium Salts with a Non-Nitrogenous Diet, ibid., p. 341.

2. Caldwell, W., and Clotworthy, H. R. S.: The Fate of Inorganic Nitrogen in the Metabolism of the Dog, Biochem. Jour., 1916, x, 14.

pelled to protect itself in the case of hydrochloric acid and phosphoric acid.

Abderhalden,[3] who has found that ammonium salts, and especially ammonium acetate, can influence at times the nitrogen balance in the sense of a retention, now contends that there are no grounds, from the results which he has obtained, for the assumption that protein can be formed, as it is in plants, from ammonia and nitrogen-free compounds, such as carbohydrates and fats. We can readily agree, therefore, in the conclusion of the most recent investigators that the analogy between the plant cell and the animal cell does not seem to hold in respect to nitrogen; for while syntheses are not denied to the animal cell, it has not yet been shown that the latter is able to manufacture complex organic substances from very simple inorganic constituents. Limitations are thus set by Nature to any extreme program of simplified nutrition.

ENDEMIC GOITER

The causation of endemic goiter has furnished a topic of engrossing interest which gains prominence in the United States as newer areas of the noticeable distribution of this disease are being brought to the attention of students of the medical sciences. At one time considerable credence was given to the assumed correlation between the geologic formation of certain regions and the incidence of thyroid growths. The strata were believed to contain and yield to the waters issuing from them undefined substances that are noxious in the sense of inducing thyroid hyperplasia. Although this broader contention, supported by the assertions of the Birchers, has been quite generally abandoned, the possibility of some etiologic connection between potable waters and endemic goiter has continued to clamor for recognition up to the present day. If water is not the vehicle for a defined chemical substance, it may conceivably be a carrier of biologic agencies, such as organisms responsible for specific diseased conditions. It has been a decided advantage for the investigations in this domain that some of the lower animals, notably the rat, have shown themselves suitable for the development of typical thyroid overgrowth, and consequently available for the investigation of its incidence on a large scale under carefully controlled experimental conditions. The discovery of characteristic thyroid hyperplasia in fishes has likewise served to ventilate the question as to whether this apparently endemic phenomenon is due to dietary and environmental factors or to infectious agencies. Both views have been supported in this country.

The most recent elaborate inquiry into the origin of endemic goiter conducted at the Hygienic Institute of the University of Zürich in Switzerland, a country notable for the frequency of this thyroid disease, affords some new facts which must be reckoned with in the future studies of the subject. Hirschfeld and Klinger[1] have found that rats kept in regions in which goiter is endemic develop thyroid hyperplasia. This outcome is without any apparent relation to geologic factors or the sources of the supply of drinking water. In a goiter-free region these hyperplasias were not developed in animals from the same original stock. Furthermore, a transfer of goitered rats to these regions of immunity gradually brought about a complete return of the involved glands to the normal. Here, then, was an experimental opportunity to study the control and origin of the disease.

The possible rôle of drinking water naturally elicited early attention. These most recent Swiss investigators have found that the cause of the endemic goiter cannot be attributed to any agency, either a dissolved substance or an organism, which is found in the water exclusively; for in the goiter region goiter developed in rats which received distilled and sterilized water to drink, while in the goiter-free regions the supply of water obtained from regions where goiter is endemic failed to provoke any hyperplasia whatever. It may be recalled that this finding is not in accord with the reports of several investigators who have seen goiter develop when water from an involved region was supplied. Hirschfeld and Klinger point out, however, that if suitable control experiments are undertaken under these conditions, goiter may appear independently of the character or source of the drinking water. It is the region or locality factor rather than the water offered that determines the outcome. They propose, therefore, to abandon the long cherished idea of the existence of a specific *kropfwasser*—a goiter-producing water.

Nor is the evidence more convincing for the theory of either the contagious or infectious character of endemic goiter — a hypothesis which also might easily be reconciled with the experience of localized incidence of the disease. Contact and common surroundings with goiter-bearing animals and nests transported from goiter regions did not increase the appearance of goiter in the unaffected localities. The views championed by McCarrison,[2] particularly with reference to the existence of intestinal etiologic factors, likewise failed of support in the Swiss experiments. On the other hand, the possibility of a microbiotic origin of goiter cannot be said to be absolutely excluded at the present time.

Hirschfeld and Klinger[1] submit that endemic goiter need not be regarded solely as the expression of an intoxication of chemical or infectious nature, which

3. Abderhalden, E., and Hirsch, P.: Fortgesetzte Untersuchungen über die synthetischen Fähigkeiten der tierischen Zelle, Versuche über die Verwertung verschiedener Stickstoffquellen im Organismus des Hundes, Ztschr. f. physiol. Chem., 1913, lxxxii, 1.

1. Hirschfeld, L., and Klinger, R.: Experimentelle Untersuchungen über den endemischen Kropf, Arch. f. Hyg., 1916, lxxxv, 139.

2. McCarrison: The Etiology of Endemic Goiter, London, 1913. Endemic Goiter, editorial, THE JOURNAL A. M. A., March 8, 1913, p. 751; Endemic Goiter and Radio-Activity, June 7, 1913, p. 1798; A Revision of Hypotheses Regarding Endemic Goiter, Feb. 14, 1914, p. 533.

has hitherto been customary, but prefer tentatively to look on the disease as due to a pathologic condition of metabolism of as yet unknown character. In view of the peculiar distribution of the malady, the well defined circumscribed nature of the defect, and the possibility of producing the disease experimentally in the ways cited, they regard it as not unlikely that a specific etiologic factor is at work. Yet it is by no means excluded that the goiter is the outcome of a cooperation of a number of independent disturbances which attain more than a fortuitous coincidence in certain regions. A way to test these views experimentally appears to be available.

FOOD ABUSES IN WAR TIMES

In referring to the fact that the annual consumption of sucrose has reached over 85 pounds per capita in the United States, a quantity equivalent to 2,000 calories daily for a family of five, we recently quoted the following significant remark by Lusk: This quantity of sugar costs the nation a million and a half dollars daily, and the rich harvest to be reaped by the replacement of only a part of this by saccharin, which has no fuel value whatever, is obvious.[1]

Recently the interesting report of Dr. A. E. Taylor on the conditions of diet and nutrition in the camp maintained for interned British civilians at Ruhleben, Germany, was reviewed as an indication of how the food problem of a country left largely to its limited natural resources was being met.[2] A subsequent report by the same American investigator[3] indicates a more serious situation from the standpoint of the possible adequacy of the ration, the diets furnished now being essentially fat-free. Fish and margarin have been withdrawn. Diplomatic complications have arisen to make a scientific discussion of the problem of the nutritional needs of the interned civilians impossible at present.

One fact, however, which is quoted on the authority of Taylor's report to Ambassador Gerard, is as significant as it will be surprising. In the absence of vegetables one week, rhubarb was served once. No sugar was furnished with it, but instead, according to Dr. Taylor's report, instructions were given to the kitchen men to employ saccharin for sweetening, and this was supplied for the purpose. The camp as a unit protested to the kitchen against the peculiar aftertaste that followed the eating of the rhubarb. This might be expected if the dosage was not regulated with intelligent oversight and experience. Prior to the war the use of saccharin in foodstuffs was absolutely prohibited in Germany. In view of current tendencies in the United States, too much emphasis cannot be given to Taylor's advice in his governmental report. He says: "It is a truism in modern food laws the world over that the consumer should never be subjected to sophistication or substitution without his knowledge and consent. If the authorities in Ruhleben are not able to furnish sugar with such foods as are normally prepared with sugar, the correct procedure would be frankly to notify the men to this effect, offer the individual men saccharin for their use, if they choose to employ it, leave it to other men to furnish their own sugar if they wish, and not impose on 3,000 men an artificial sweetening agent without their knowledge or consent." These words express a sentiment which deserves widespread diffusion on this side of the Atlantic, where war does not excuse objectionable practices in the food industries.

1. Lusk, Graham: Food Economics, Jour. Washington Acad. Sc., 1916, vi, 393.
2. A Report on Nutrition in a German Internment Camp, editorial, THE JOURNAL A. M. A., July 8, 1916, p. 125.
3. Further Correspondence Respecting the Conditions of Diet and Nutrition in the Internment Camp at Ruhleben, presented to both Houses of Parliament, London, Miscellaneous No. 21, 1916.

Current Comment

PERPETUATING PATENTS BY TRADE NAMES

The patent on aspirin[1] (acetylsalicylic acid), controlled by the Bayer Company, American representative of the Farbenfabriken of Elberfeld Company, will expire next year (1917). THE JOURNAL has previously stated that the grant of this patent was regrettable and worked injustice to American citizens. It is unnecessary again to go into the grounds for this statement; neither in the Farbenfabriken's home country, Germany, nor in any other country except in the United States, has a patent been granted for this product. Owing to their monopoly, the manufacturers have been able to exact a much higher price for acetylsalicylic acid, or aspirin, in this country, than elsewhere. Naturally, the Bayer Company, the American agents, view with disfavor the prospect of being compelled to share this rich field with competitors. The foregoing furnishes the answer to inquiries which have reached us from all over the country with regard to the campaign of publicity which the Bayer Company has inaugurated in the lay press. A presumably authentic and apparently candid exposition of the methods used and the motives behind the aspirin advertising is furnished in *Printers' Ink:*[2]

> "The manufacturers of aspirin are about to launch an extensive advertising campaign to clinch the market as far as possible before the expiration of their patent rights next year. . . . The purpose of the campaign is to identify the product with the trademark of the Bayer Company and to this extent hamper competition after the expiration of the patent."

The business of the Bayer Company, the article goes on to say, has been hurt by the sale of worthless or even harmful imitations put on the market by irresponsible and unauthorized persons when the present war stopped importations from Germany.

> "The public knew aspirin, *but did not know who made it* [italics ours]. . . . When the Bayer Company, Inc., took

1. Granted Feb. 27, 1900.
2. Printers' Ink, June 29, 1916, p. 189; July 13, 1916, p. 100

over the manufacture of aspirin in this country, the first steps were taken to identify the product with the firm who made it. . . . Of course, there are good reasons why the makers were loth to advertise the product or to exploit their trademark. As every one knows, the advertising of a medical proposition is an extremely ticklish subject. . . . It is easy to make a misstep. Aspirin is one of those proprietary drugs that are extensively prescribed by physicians. If anything were done that might possibly associate this drug with the patent medicines that are in disfavor with the profession, the valuable influence and cooperation of thousands of doctors might be lost. It is believed that this knotty phase of the question is being answered in the present advertising. . . . Since nothing is mentioned about 'medicine,' 'cures' or 'ailments,' it is anticipated that there will be but little objection to the copy. All that the advertising attempts to do is to link up the name 'Bayer' with aspirin. . . . The nearest the copy gets to medical talk is in this sentence in very small type at the bottom of the advertisement, 'The trade-mark "Aspirin" (Reg. U. S. Patent Office) is a guarantee that the monoacetic acid ester of salicylic acid in these tablets is of the reliable Bayer manufacture.'"

From this it appears that, not content with seventeen years of monopoly, the aspirin people are attempting to retain a hold on the market *in perpetuo* by associating the name of the company with the trade name "aspirin." There can be no better time than the present, therefore, for the medical profession to substitute, for the nondescriptive name "aspirin," the descriptive and correct name acetylsalicylic acid.

MIRACLES IN THE WAR ZONE

The *Outlook* publishes, in a recent issue,[1] the "War Letters of an American Woman." The writer describes the results of a treatment of burns which she witnessed at a Paris hospital, and admits at the outset that she finds it hard to write collectedly on the subject. She was evidently in the proper condition — "sensitive" is, we believe, the technical term — to show high receptivity for the miraculous. The tar, which had been sprayed on the soldiers by the enemy, long miles away at the front, was still burning, she says, when they reached the hospital in Paris. Such a beginning leads the reader to anticipate something sensational; he is not disappointed. Enough miracles are related to make fortunes for half a dozen shrines and to justify a carload of relics. "And do you know, will you believe," she writes, "that very man — that apparent wreck, every feature of whose face was then indistinguishable, eyes closed, *lips and parts of his face burned to the bone*, teeth all exposed like a grinning mask, . . . ten days after . . . the deep wounds are filled up, the flesh fast healing over with new skin, that . . . there will not be, within another week, *even a scar?*" At the risk of being discourteous, the physician will answer this question in the negative. These marvels are credited to a dressing,[2] a proprietary product which has been for more than a dozen years on the French market and which has been also exploited here. Though this product is in composition intermediate between paraffin cerate and resin cerate, it sells, under its proprietary name, at $4 a pound.

1. The Outlook, Aug. 2, 1916, p. 794.
2. See Ambrine, Queries and Minor Notes, this issue, p. 535.

The correspondent of the *Outlook* draws a touching picture of the discoverer. The researches which culminated in this discovery have left him prematurely old and broken in fortune. "He deserves the recognition and the thanks due to a great benefactor of the human race. But he doesn't ask it. He is the most modest of men." Alas! That such modesty should not be allowed to blush unseen. Not only does "An American Woman" indiscreetly publish his name and address, but the American agents for this remedy, in their ruthless rapacity and sordid commercialism, ride roughshod over his modesty and for years have been freely using his name in their advertising literature. The greatest miracle is that, by the instrumentality of a credulous and uncritical lay writer, the esteemed *Outlook* has been ambushed into spreading a gratuitous advertisement over two of its most valuable pages.

EFFICIENCY EXPERTS, SOCIOLOGISTS AND DOCTORS

The efficiency expert was investigating the hospital. He reached a twenty-bed ward just at the luncheon hour. Twenty well filled trays were placed before the patients. Six trays, untouched, were removed thirty-five minutes later. "Absolute waste," said the efficiency expert. "Find out which patients want something and send up trays only for those that are hungry." "But a well filled, beautiful tray will sometimes create an appetite," said the physician. "Oh!" said the efficiency expert. The lady sociologist had carefully thought over the matter of birth control and obstetrics and sat down to write out her thesis:

> Medical men have done much to help population (and at the same time to increase obstetrical practice!) by inventing bugaboos. For example, it is frequently stated by medical men and is quite generally believed by women, that if a first childbirth is delayed until the age of thirty years the pains and dangers of the process will be gravely increased, and that therefore women will find it advantageous to begin bearing children early in life.
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> One also reads that women who bear children live longer on the average than those who do not, which is taken to mean that child bearing has a favorable influence on longevity.
>
> A third bugaboo is that if a child is reared alone, without brothers and sisters, he will grow up selfish, egotistic, and an undesirable citizen. Figures are, however, so far lacking to show the disastrous consequences of being an only child.

"Well," said the physician, "the lady is clearly in error. For example—" But what's the use! "Shoemaker," said Aesop, "stick to your last."

THE ARTIFICIAL PURIFICATION OF OYSTERS

The biologic conditions most favorable for the production of high class oysters are too frequently associated with those which tend to produce pollution. This circumstance has caused disease from the consumption of contaminated oysters. Three radical remedies which have been suggested for this danger are: alteration of sewage disposal outfalls, removal of the beds, and prohibition of the fishing of oysters in polluted areas. In many cases, for economic reasons,

none of these remedies are available. It has been found that if contaminated oysters are placed in unpolluted tidal or stream water they will purify themselves in a very short time. In the summer months, only a few hours are required, and in the hibernating period, a few days. This method has been put into practice in Europe, but two factors militate against its universal application. The people of the United States are accustomed to purchasing oysters of a good quality at a low price. The cost of this operation would be prohibitive. Moreover, it would rarely be possible, in the immediate neighborhood of the oyster beds, to find unpolluted water areas for purification purposes with a saline content similar to that of the waters in which the oysters have been grown. These facts have stimulated the search for other methods of purification. Mr. W. F. Wells,[1] sanitary chemist in the United States Public Health Service, has obtained entirely satisfactory results by the use of small quantities of bleaching powder. He places oysters in basins or floats containing a suitable quantity of water, and then treats them with two doses of a suspension of calcium hypochlorite. The second dose is given after six hours. In each case a quantity of bleaching powder is used which gives 1 part of available chlorin in 4,000,000 parts of water. The experiments are believed to prove that in this simple and inexpensive manner, oysters which have lain in polluted water can be purified to such a degree as to pass the most rigid standard, without in any way interfering with the normal life of the oyster, or producing any appreciable difference in flavor.

FOREIGN CORRESPONDENCE

On various occasions, letters have appeared in our Knocks and Boosts department which indicated that some of our readers regarded THE JOURNAL as unneutral. According to some of the writers, THE JOURNAL was biased in favor of the Allies; according to others, in favor of the Central powers. Among the reasons mentioned for these views were that (1) THE JOURNAL placed the London letter before the Berlin letter; (2) the Berlin letter appeared before the London letter; (3) some sentence in an editorial, in a news item, or even in an original article had favored one side or the other. Now THE JOURNAL is unneutral because it is publishing letters from Paris and London, but not from Berlin or Vienna. One subscriber has discontinued his subscription for this reason. While THE JOURNAL regrets losing a subscriber, it regrets still more that it cannot get the letters. Our occasional correspondent at Budapest, from last accounts, was a prisoner in Russia. Our Vienna correspondent, when last heard from, was working in a base hospital at the front. We have just had word from our Berlin correspondent that he stopped sending letters because, among other reasons, he was not getting THE JOURNAL and had not received the remittances which had been sent him, therefore concluding that his communications were not getting through. We expect, however, to have his regular letters soon. Incidentally, it will be noticed that no German or Austrian journal has been listed recently in our Current Medical Literature department. This, of course, is because none has been received: the date of the last Berlin journal that reached us is April 17, and of the last Vienna journal, March 9.

1. Wells, W. F.: Artificial Purification of Oysters, Pub. Health Rep., July 14, 1916.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Quarantine Against Poliomyelitis.—The state board of health on July 10, established a state quarantine against infantile paralysis and detailed six inspectors to board and inspect all overland trains before entering the state.

Fight Against Rabies Expensive.—During the fight which California has been making against the spread of rabies, 7,162 coyotes were killed, as well as many other rabies-carrying animals, and the cost of the campaign was $10,500.

Personal.—Dr. Lorne B. Graham, San Francisco, has returned after two years' service in hospitals in London, in Red Cross work, on convoy ships in the Mediterranean, and finally on duty with a Canadian regiment at the front.——Dr. Charles W. Girdlestone has been elected city health officer of Riverside, succeeding Dr. George E. Tucker, resigned.

ILLINOIS

Personal.—Dr. J. Howard Beard, Urbana, has been appointed health officer of the University of Illinois.——Dr. Harry W. Ackemann, Rockford, Captain, M. C., Ill. N. G., assigned Third Illinois Infantry, has been obliged to return from the southern frontier on account of illness.

New Rules for Healers.—New rules governing the examination for "practitioners other than licensed physicians" go into effect September 1. The new rules for these "other practitioners" require a high school training and four full years of technical work for full credit on the point of education preparation. There are at present about 1,800 "other practitioners" licensed in Illinois.

Anterior Poliomyelitis.—The State Board of Health has issued a pamphlet, brief and clearly expressed, giving information and advice regarding acute anterior poliomyelitis, together with an abstract of the rules and regulations of the board regarding the disease. Copies of this pamphlet may be obtained on application to Dr. C. St. Clair Drake, executive officer of the State Board of Health, Springfield.

Cattle Quarantine Removed.—On July 21, the secretary of agriculture ordered release from tuberculosis cattle quarantine for Lake, McHenry, Kane, Dupage and Cook counties, effective August 1. The quarantine has been in force since October, 1914.——The State of Illinois, on August 5, became officially free from foot and mouth disease and on that day the last quarantined farm in Christian County was released from restrictions.

Chicago

The Aid of Morons.—At a conference between Judge Scully, the county commissioner, and the members of the State Board of Administration, July 27, it was voted to place under the charge of Dr. Harold D. Singer and assistants, the Psychopathic Hospital, at the disposal of the state for experimental work.——The establishment of a farm colony for morons and feebleminded, and for the arrest and cure of all drug addicts, were also recommended by the conference.

Personal.—Dr. Norman MacL. Harris of the University of Chicago, has been made captain in the Canadian Army Medical Corps.——Dr. Nathan S. Davis, III, has been commissioned first lieutenant Medical Corps, and assigned to Battery C, First Illinois Artillery.——Dr. and Mrs. George P. Marquis have started on a trip for Alaska.——Dr. Daniel F. Hayes, who has been at work for a year in Etaples, France, with the Murphy unit, has returned.——Dr. Hubert

Dunn has reached Berlin and will join the staff of the Wisconsin Red Cross unit in Germany.——Capt. George L. Lipshulch was appointed camp surgeon at Camp Dunne, Springfield, August 7, succeeding Lieut.-Col. Jacob Frank, mustered out of the federal service.

Infantile Paralysis.—Richard T. Crane, in a telegram to Mayor Mitchell of New York, announces a gift of $25,000 to the individual who may offer the best cure for infantile paralysis, or the best solution to that problem, within a year.——Health Commissioner Robertson has asked Mayor Thompson to allow a portion of the contingent campaign fund to be used to prevent the spread of infantile paralysis in Chicago, as the $5,000 provided by the City Council for that purpose will be exhausted this week. Up to August 8, forty cases of infantile paralysis had been reported in Chicago. One case is reported from Aurora and two new cases were reported from Evanston, August 7.

INDIANA

Personal.—Dr. Warren D. Calvin, Fort Wayne, has been commissioned first lieutenant, Medical Reserve Corps, and detailed on the examination of recruits.

Work of State Charities Board.—Reports show that the agents of the state board of charities made 1,204 calls, in the quarter ended July 31, on children over whom the board has supervision. In the three months application was made for 150 children and 102 children were placed in homes. One hundred and sixteen applications were investigated; twenty-five were rejected as unfit. Fifty-six children were placed for the first time. Fifteen children were returned to county support. Forty-three visits to orphans' homes were made by the agents. Fifty-six calls were made on county officials in regard to children's work. One hundred and nine special investigations were made, 432 days were spent in the work and the cost to the state was $2,993.69 and to the counties for the children's traveling expense, $168.67.

LOUISIANA

New Sanatorium Staff.—Dr. E. M. Ellis has taken over the Crowly sanatorium under a five year lease, and has associated with him Drs. John W. Faulk, Albin B. Cross, Ralph B. Roney and Manssch S. Hoffpauir.

Increased Entrance Requirement.—An official communication just received from the School of Medicine of the Tulane University of Louisiana states that after Jan. 1, 1918, the entrance requirement of that institution will be two years of college work, which must include courses in physics, chemistry and biology, with laboratory work, and one year of French or German.

New State Board Car.—The new laboratory car of the state board of health is making its first tour of the state under the charge of Dr. Oscar Dowling. The car is completely equipped with all instruments necessary to bacteriologic work and carries a small automobile which is sent out as soon as the car reaches the station, to collect samples of milk and water for immediate analysis.

Hospital News.—The Great Southern Lumber Company, Bogalusa, has established an eight-room hospital to assist in the demonstration of the cause and cure of pellagra.——Drs. John A. Hendricks and Thomas P. Lloyd, both of Shreveport, and Henry J. Parsons, Mansfield, have asked for bids for the erection of a four story, fireproof building for the Highland Sanitarium, Shreveport, to accommodate about sixty patients and to cost about $80,000.

Personal.—Dr. Stephen W. Stafford has been elected superintendent of the New Orleans Charity Hospital.——Dr. G. C. Chandler has been reelected president of the Shreveport Board of Health and local health officer.——Dr. Joseph J. Holt has been reelected president of the New Orleans Parking Commission.——Dr. Gustavus Mann, New Orleans, has been appointed consulting chemist for the Freeport Oil Company of Texas with headquarters at Huston.——Dr. Thomas A. Roy, Avoyelles, has been reappointed a member of the state board of health.

MARYLAND

Infantile Paralysis.—The second death in Baltimore from infantile paralysis occurred August 4 at the Harriet Lane Home, Johns Hopkins Hospital.——Three suspects have been reported to the department, but none of these is said to have infantile paralysis.——A positive case has been reported to the State Board of Health from Salisbury.——A child living in Hampton is suspected of having infantile paralysis.——A suspected case is reported at Lansdowne, Baltimore County.——The health commissioner is having all children arriving from New York, met at the station by health wardens and the homes of these children are inspected at intervals during the two weeks following their arrival in Baltimore.

Personal.—Dr. James J. Mills, instructor of ophthalmology at Johns Hopkins Medical School, sailed August 6 on the *Rochambeau* for Bordeaux, France. He has been engaged by the chief physician of the town of Biarritz to assist in the treatment of injuries to the eyes of the soldiers and expects to return in September.——Dr. William H. Welch sailed from New York August 6 for England to study institutions from which he may get ideas for the organization of the Rockefeller School of Hygiene and Public Health, which will be established in Baltimore. Dr. Welch will also study the manner in which England has been organized in scientific and other lines for the war, as head of the National Academy of Sciences. He will be accompanied by Dr. George Ellery Kale, chairman of the organization committee of the academy.

MASSACHUSETTS

Infantile Paralysis.—There have been seventy-one cases of infantile paralysis reported in Massachusetts since July 1. Of these, eight have occurred in Westfield.

Personal.—Dr. John G. Perman, Worcester, has been appointed trustee of the Worcester State Hospital.——Dr. Sarah E. Coppinger, Boston, has resigned as a trustee of the Foxboro State Hospital.——Dr. Arthur P. Noyes has been appointed senior assistant physician at the Psychopathic Hospital, succeeding Dr. George E. McPherson, resigned.——Dr. Douglas A. Thom, assistant physician and pathologist at the Monson State Hospital, has been appointed assistant pathologist to the State Board of Insanity with headquarters at the Summer Street Department of the Grafton State Hospital, Worcester.——Dr. Emily A. Pratt of the Henry Haywood Memorial Hospital, Gardner, has been appointed assistant physician at the State Infirmary, succeeding Dr. Hattie E. Chalmers, resigned.——Dr. Arthur E. Timme has completed a four months' course of training at the Psychopathic Hospital.——Dr. A. Louis Gramsch, Lowell, has been appointed lieutenant, Medical Corps, Massachusetts V. M., and assigned to duty with Field Ambulance No. 2.——Dr. Charles D. McCarthy, Jr., Malden, who has been ill with spinal meningitis in the American Hospital, Neuilly, France, is reported to be convalescent.

MICHIGAN

Bounties for Rats.—The county clerk of Branch County has issued orders for the payment of bounties for 5,000 rats killed since Sept. 1, 1914.

Site for Tuberculosis Hospital.—A site has been selected for the new Keweenaw County Tuberculosis Sanatorium overlooking Lake Superior, east of Eagle River Falls. Plans are being considered for the erection of a building to accommodate at first from ten to fifteen patients.

Tuberculosis Survey.—The tuberculosis survey of Dickinson County commenced, July 31, and the party is in charge of Dr. William DeKleine, director of the survey, assisted by physicians and visiting nurses.——The survey in Ontonagon County commenced, July 10, and in Gogebic County, July 17.

State Society Meeting.—The annual convention of the Michigan State Medical Association will be held in Houghton, August 15 to 17, under the presidency of Dr. Alfred W. Hornbogen, Marquette.——The Upper Peninsula Medical Society will hold its meeting with the state society, August 16.

Tribute to Dr. Jenks.—Special resolutions were adopted by the faculty of the Detroit College of Medicine and Surgery, June 4, bearing tribute to the high respect in which the late Dr. Nathan Jenks was held. The resolutions were ordered to be spread on the minutes of the faculty and a copy was ordered to be sent to Dr. Jenks' family.

Asylum Boards Hold Conference.—At the midsummer meeting of the joint board of trustees of the state hospitals held in Kalamazoo, July 18, Dr. Adolph Meyer, psychiatrist-in-chief of Johns Hopkins Hospital, Baltimore, spoke on "The Extra-Institutional Responsibilities of State Hospitals for Mental Diseases"; and George A. Hastings, executive secretary of the Committee on Mental Hygiene, New York, spoke on "Meeting the Mentally Sick Half Way."

Personal.—Dr. Charles J. Foley, Pontiac, has been appointed surgeon for the Michigan Workmen's Compensation Mutua

Insurance Company, Detroit. He has also been appointed a member of the visiting staff of the Harper Hospital.——Dr. D. Emmett Welsh has been appointed a member of the Grand Rapids Board of Health.——Dr. Henry R. Carstens, Detroit, first lieutenant, M. R. C., U. S. Army, has been ordered to duty at Columbus Barracks.

MINNESOTA

Appropriation Against Poliomyelitis.—An emergency fund of $5,000 for use in the prevention of the spread of infantile paralysis in Minnesota, was voted by the governor, state treasurer and state auditor, under the statute relating to public calamities. There have been 102 cases of infantile paralysis reported in the state since July 19, and twenty-five cases are under surveillance at present.

Hospital News.—It has become necessary to enlarge the accommodations of the Northwestern Hospital, Moorhead. A large nurses' home will be built on the ground just west of the hospital. This building will also contain an obstetric ward, a Roentgen-ray laboratory and pathologic laboratory.——A new hospital will be erected on College and Summit avenues, St. Paul, between St. Peter and Rice streets. The site is 240 by 216 feet. Mrs. Martha A. Miller, who died last year, left property worth about $1,000,000 and $400,000 in cash for a hospital for the poor of St. Paul, to be known as the Charles T. Miller Hospital in memory of the husband of the testatrix.——Dr. Bertram S. Adams, Hibbing, is building a two-story hospital building which will contain two wards and ten private rooms.——Dr. Merton Field opened a hospital in the Bennett Block, St. Peter, July 11.

State Health Association.—At the annual meeting of the Minnesota Public Health Association held in St. Paul, recently, the following officers were elected: Dr. Warren L. Beebe, St. Paul, president; Dr. John W. Andrews, Mankato, and Mrs. A. L. Robinson, Warren, vice presidents; Governor J. A. A. Burnquist and President George E. Vincent of the University of Minnesota, honorary vice presidents, and Dr. Edward L. Tuohy, Duluth, secretary. Dr. Ignatius J. Murphy, St. Paul, was continued as executive secretary, and Dr. Paul B. Cook, St. Paul, as treasurer. The association is in need of a permanent field secretary and also of two field nurses who will devote their time to the organization of dispensaries in counties already equipped with tuberculosis sanatoriums, and to the demonstration of methods in which a nurse can assist in the control of tuberculosis in infant welfare work, and in school supervision. The association has commenced the publication of a monthly journal, the first issue of which appeared in July and contained the annual report. Future issues will feature the topics of personal health, tuberculosis, teeth, tonsils and adenoids, hygiene of the home and community nursing.

NEW JERSEY

Infantile Paralysis.—On July 31, thirty-five new cases of infantile paralysis were reported for the state at large, and fifty-one new cases in Newark with four deaths.

State Board Election.—At the annual meeting of the State Board of Medical Examiners in Newark, July 15, the following officers were reelected: president, Dr. William Perry Watson, Jersey City; secretary, Dr. Alexander MacAlister, Camden, and treasurer, Dr. F. Wilbur Cornwell, Plainfield.

Personal.—Dr. Samuel D. Bennett of Millville has been elected medical inspector of schools.——Dr. J. Lewis Lane, Tuckerton, has been appointed physician to the eight lifesaving stations between Barnegat City and Little Beach.——At the annual meeting of the state department of health, July 11, William H. Chew, Salem, was reelected president, and Dr. Edward A. Ayers, Branchville, was elected vice president, succeeding Moses M. Baker, Montclair, term expired.

Hospital Items.—The commission named by Governor Fielder to relieve the overcrowded condition of the Morris Plains Hospital, has recommended the establishment of another institution for the insane instead of enlarging the Trenton State Hospital.——Essex County has decided to erect isolation shacks to care for patients suffering from infantile paralysis, and has also decided on the erection of a large, modern tuberculosis sanatorium. The Newark Tuberculosis Sanatorium, Verona, has offered to lease its property to Essex County with an option of purchase. A shack 18 by 100 feet, with accommodations for fifty patients, it to be erected at a cost of $2,500 and a temporary building for a nurses' home will also be put up at a cost of about $1,500.

NEW YORK

Personal.—Dr. Bernard Glueck of Washington, D. C., is cooperating in the establishment of the psychiatric clinic in Sing Sing Prison.——Dr. Joseph Roby, Rochester, has returned after visits to military hospitals in France, Switzerland and Italy.

Poliomyelitis Increases Throughout State.—On August 4, a total of thirty cases of infantile paralysis were reported to the State Health Department, making a total of 575 cases in the state outside of New York City. The total number of deaths in the state is fifty-three.——The military training camp to have been held at Peekskill for boys has been abandoned because of the epidemic. A report came from Troy on the evening of August 4, stating that another death from infantile paralysis had occurred at Saratoga Springs.——The health supervisor of the Northern New York District states that investigation has proved, beyond a doubt, that the disease was being carried by milk. Of six cases and three deaths all were on the same milk route.——Owing to the prevalence of infantile paralysis, strict quarantine regulations have been established on the Military Academy Reservation, West Point, beginning August 1.——The new cases of anterior poliomyelitis reported in greater New York, August 8, numbered 183, an increase of thirty-eight cases over the previous day and the highest number of cases recorded in any day since the beginning of the epidemic. On August 8, there were fifty-two deaths and the total cases now number 5,366 with 1,194 deaths, a percentage of 22.25.

New York City

Dental Lectures for Medical Students.—In addition to the proposed dental school in connection with Columbia University a course of lectures on dentistry is planned for medical students. These lectures aim to furnish the medical student with a knowledge of the fundamental principles in the proper care of the teeth, and will emphasize the close relationship between the diseases of the body and defective teeth. The dental specialists who will deliver these lectures are Drs. Leuman M. Waugh, Arthur H. Merritt, William B. Dunning, Harold S. Vaughan and Henry S. Dunning.

Health Exhibit at Coney Island.—A health exhibit for men only, designed to teach the important facts regarding venereal diseases, is now being successfully operated at Coney Island. The exhibit represents the cooperation of the New York Social Hygiene Society, the Brooklyn Hospital Dispensary, and the Department of Health, and is financed mainly by the first named organization. Judging by the number of visitors, their demeanor, the interest taken in the exhibit, and the questions asked, the enterprise is bound to exercise a wholesome educational effect. After the close of the Coney Island season it is planned to show this exhibit in various parts of the city.

Faculty Changes.—The following appointments to the faculty of the University and Bellevue Hospital Medical College have been announced: Dr. Joseph B. Bissell, Dr. Thomas A. Smith, and Dr. Arthur M. Wright, clinical professors of surgery; Dr. William C. Lusk, professor of surgery; Dr. W. Howard Barber, chief of clinic, department of surgery; Dr. George Francis Cahill, instructor in surgery; Dr. Theodore J. Abbott, clinical professor of medicine; Dr. Benjamin M. Levine, clinical professor of cancer research; Dr. Charles Krumwiede, Jr., assistant professor of bacteriology and hygiene; Miss Mary Smeeton instructor in bacteriology.

Personal.—Dr. Donald B. Armstrong has resigned as director of the Department of Social Welfare of the New York Association for Improving the Condition of the Poor, to become assistant secretary and director of the community tuberculosis experiment of the National Association for the Study and Prevention of Tuberculosis.——Dr. Timothy D. Lehane, coroner's physician, is seriously ill with septicemia due to a necropsy wound.——Dr. Albert H. Brundage, Brooklyn, is under treatment in Johns Hopkins Hospital for pyloric stenosis following ulcer of the stomach.

Conference on Poliomyelitis.—The conference of pathologists which was suggested by Dr. Haven Emerson took place at the College of Physicians and Surgeons on August 3. Dr. Simon Flexner was chosen as chairman. A committee was appointed to consider all the phases of laboratory investigation, to suggest subjects and in some instances lines of study in connection with the disease. This committee consists of Dr. Flexner, Prof. Ludvig Hektoen, University of Chicago, Prof. Hans Zinsser, College of Physicians and

Surgeons, New York; Prof. Richard M. Pearce, Jr., University of Pennsylvania; Prof. James W. Jobling, Vanderbilt University, Nashville, Tenn.; Surg. George W. McCoy, U. S. P. H. S., director of the hygienic laboratory at Washington, and Dr. Theobald Smith, Princeton, N. J., of the Rockefeller Institute. Another committee was appointed to consider practical measures that might apply in the suppression of the epidemic. This committee consists of Dr. Victor C. Vaughan, University of Michigan, chairman; Prof. Milton J. Rosenau, Harvard, Boston; Dr. William H. Park, Department of Health, New York City; Dr. Francis W. Peabody, Boston; Dr. John Howland, Johns Hopkins; Dr. Augustus B. Wadsworth, director of the State Laboratories, Albany; and Prof. Charles C. Bass, Tulane University, New Orleans. The members of the conference were conducted through the infantile paralysis wards of the Willard Parker Hospital and were present at a clinic held there. The research workers will carry with them cultures of the disease and will work out various lines of investigation in their own laboratories. The report of the Conference was presented to Dr. Haven Emerson on August 4 and lays stress on:

1. The early recognition and notification of the disease, and
2. The immediate isolation of patients and cases of suspicious illness.

Furthermore, on account of incomplete knowledge concerning the disease, measures known to be effective in checking the spread of other infections should be applied and these are, particularly, personal hygiene, cleanliness of person and surroundings, and care of food, which should be thoroughly cooked.

In order to secure the earliest possible recognition and notification of cases and their prompt isolation, we wish to direct particular attention to the appeals that have been made by the department to the physicians of the city and to the public generally that they cooperate with the department in all these measures.

We strongly recommend that you inaugurate a house-to-house inspection of as large a part of the city as is practicable, twice a week, for the purpose of education and of securing the early recognition, notification, and isolation of the disease.

We are of the opinion that satisfactory isolation is secured only in hospitals. Moreover, not only is more thorough protection secured for the public by the hospitalization of patients, but it is also better for the individual patient.

The special problems suggested for study are the following:

1. Methods of culture of the virus of poliomyelitis, with especial reference to corroboration of previous work, to simplification of methods, and to the distribution of the virus in the body of patients.
2. The immunologic reactions of patients, supposed carriers of the virus, and others.
3. The virulence for animals, of the crude virus, in order to determine if possible whether there are any differences in the virus causing outbreaks in different parts of the country as well as to discover, perchance, more susceptible animals for experimental purposes than are now available.
4. The microscopic study of the secretions of the nose and throat and of the intestinal contents of patients suffering from poliomyelitis, persons who have come in close contact with such patients, and others.
5. The transmission of the disease by insects and domestic animals and other possible modes of transmission.
6. The study of practical methods of disinfection.

The Board of Estimate has appropriated $2,000 to defray the expenses of the conference.——The records of the Department of Health on August 4 show that there have been in all 4,674 cases of infantile paralysis in this city, with a total of 1,025 deaths. Hospitals have cared for 2,399 cases. The Health Department has issued, up to August 4, 53,691 health certificates to children under fifteen years of age leaving the city and has refused certificates to 256.——The New York *American*, on August 5, started a fund for saving infants from anterior poliomyelitis. Mr. Hearst made the first subscription of $5,000. Thirty-five thousand dollars is needed for the work and the money will be used to establish a free dispensary which will provide treatment for about 1,000 children. The medical work will be in the hands of a board of physicians and orthopedic surgeons.

PENNSYLVANIA

Hospital Notes.—The homestead of Daniel Boone in Exeter Township has been offered to Reading as the location for the proposed municipal hospital. The tract contains 160 acres and is offered to the city for $10,000.——Plans have been submitted and approved for the erection of a pavilion for consumptive children at the Leech farm near the Pittsburgh Municipal Tuberculosis Hospital. The pavilion will accommodate twenty-four patients.

Quarantine Against Infantile Paralysis.—The following message was sent to the New York and New Jersey health commissioners, August 4, by Dr. Samuel G. Dixon, commissioner of health of Pennsylvania:

> The Commonwealth of Pennsylvania this day placed quarantine against all children under 16 years of age coming from outside this Commonwealth who have had or have been in contact with infantile paralysis or who have been living in premises in which there is or has been a case of infantile paralysis during the present epidemic. Other children less than 16 years of age from any stricken district will be held under observation.
>
> SAMUEL G. DIXON,
> Commissioner of Health.

Four new cases of the disease have been reported to the state department. All boroughs and third class cities have been warned to make an immediate sanitary inspection of every property in the community, to have all human and animal waste and all garbage handled in such a way that will prevent the breeding of flies and other insects. On July 29 medical officers of the state department of health served notice to parents of children on excursion trains to New York that children under 16 years of age would not be taken to that city.

Philadelphia

Insane Patients Transferred.—The transfer of twenty-four patients, of whom twenty-one were men from the insane department of the Philadelphia General Hospital to the state institution at Wernersville has slightly relieved the congested conditions at Blockley. The patient's expenses will be paid equally by the city and state and they will remain until the new buildings for the city's insane at Byberry are finished.

Meeting on Infantile Paralysis.—A conference of physicians of the Philadelphia County Medical Society, the Pediatric Society, the Baby's Hospital, the Children's Hospital and the Babies' Welfare Association was held at the request of Dr. Wilmer Krusen, director of Public Health and Charities, at city hall on August 4. Because of the many cases of the disease in the forty-third ward, which includes the Hunting Park Avenue district, Dr. Krusen made an inspection of the entire ward and directed the chemist of the Bureau of Health to at once make laboratory tests (both chemical and bacteriologic) of the water in the three wells or springs of the Hunting Park. Dr. Samuel G. Dixon, state health commissioner, will ask the railroad companies operating between this city and New York and New Jersey not to sell tickets to any place in this state to children under 16 years of age without certificates of their health. A request will also be made to railroad companies of this city not to sell excursion tickets to points in New Jersey and New York to children under 16 years old. The number of new cases in Philadelphia, according to report of August 5, was eight with one death. A rigid inspection of every playground in the city has been started by the board of recreation to insure children against contagion. Visiting nurses will daily attend those in the crowded sections, examining the children and separating those that need medical attention. Sand piles will be closed for the present and wading pools will be strictly watched.

TEXAS

Health Survey.—An intensive campaign is being conducted in Wood County for the eradication of malaria and hookworm. A similar health survey is soon to be commenced in Harris County, which has raised $2,400 for the purpose. The work will be undertaken by the International Health Commission.

Health Certificates Required.—As the result of a conference held at Austin recently between State Health Officer William B. Collins, quarantine officers along the border and railway surgeons, a ruling has been adopted requiring all persons applying for transportation from public carriers on the border, to present a state certificate from a quarantine officer as evidence that they are free from disease and can be transported from the railroad without jeopardizing the health of the people of Texas. This has especial reference to the prevention of the introduction of typhus fever into the state from Mexico.

County Society Entertains Medical Officers.—An entertainment was given by the El Paso County Medical Society in the Elks Club, July 15, in honor of all officers of the Medical Corps of the army and organized militia on duty in El Paso. The officers have already been given the freedom of the headquarters of the society, including the library. Bexar County Medical Society entertained the medical officers on duty at San Antonio. Addresses were made by Dr. Jackson of San Antonio; Maj. Henry D. Thomason, M. C., U. S. Army, and Maj. Gustavus M. Blech, commanding Second Illinois Field Hospital.

WEST VIRGINIA

State Association Semicentennial.—The West Virginia State Medical Association will celebrate its semicentennial in October, 1917, at Fairmont, where the organization had its beginning fifty years ago. Dr. James R. Bloss, Huntington, was reelected editor of the state medical journal.

Health Officers Meet.—A conference of health officers of the state was held at Charleston, July 25, on call of Dr. Samuel L. Jepson, health commissioner. Two sessions were held, at each of which four papers on public health problems were presented. The conference was attended by health officers from thirty-eight counties. One of the most interesting papers was an illustrated talk by Surg. John McMullen, U. S. P. H. S., on "Trachoma as a Public Health Problem." Dr. Jepson delivered an address on "The Value of Morbidity and Vital Statistics."

WISCONSIN

Personal.—Dr. Joseph A. Rene, formerly of Superior, but for the last four years in charge of a hospital at Mazatlan, Mexico, has returned to the United States.—Dr. Sarah I. Morris, Madison, was the guest of honor at a luncheon given in Scranton, Pa., July 5.

Hospital Notes.—Representative men of Ladysmith met July 26 to discuss the plans to provide a modern hospital for the city. It was decided to conduct a campaign to raise $50,000 for the erection and equipment of the hospital which is to be known as St. Mary's Hospital, and will be conducted by the Sisters of the Servite Order.

GENERAL

Hay-Fever Campaign.—The United States Public Health Service, on July 24, inaugurated a campaign for the relief of sufferers from hay-fever. The service will endeavor to have state legislatures enact laws to provide means for fighting weeds which are known to provoke the disease. It is said that 2 per cent. of the people of the United States are sufferers from hay-fever.

Appropriation for Consumptives.—The Senate Public Health Committee, on July 28, voted to report favorably a proposed appropriation of $2,000,000 to be spent in the care of indigent sufferers from tuberculosis. The object of the appropriation is to relieve the states of the care of invalids who leave their homes in search of health and then become charges on other communities.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Homeopathic Hospital and St. Luke's Homeopathic Hospital, Philadelphia, each $2,000, by the will of Rachael L. Jones.

Presbyterian Hospital, New York City, $19,285; New York Society for the Relief of the Ruptured and Crippled, $5,000, by the will of Mrs. Nellie M. Noe.

Columbia (S. C.) Hospital, and Anna Jacques Hospital, Newburyport, Mass., each $500, by the will of Miss Sarah E. Stickney.

May Fletcher Hospital, Burlington, Vt., a donation of $20,000, by Ira C. Calef, Washington, Vt.

Healin Hospital, Montpelier, Vt., a donation of $20,000, by Mrs. Ira C. Calef.

Lowell (Mass.) General Hospital, a donation of $200,000, $130,000 of which is to be used to build and equip a new ward and the remainder, $70,000, for an endowment fund, by Frederick Fanning Ayer.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, lists one contribution for the month of July, 1916:

Dr. Miles F. Porter, Ft. Wayne, Ind. (second contribution)	$ 5.00
Receipts for the month of July	$ 5.00
Previously reported receipts	7,941.86
Total receipts	$7,946.86
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,274 standard boxes of food at 2.30	2,930.20
353 standard boxes of food at 2.28	804.84
Total disbursements	7,310.04
Balance	$ 636.82

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Oleo Interests not Responsible for Proposed Investigation of the Butter Industry.—Representative Linthicum of Maryland in a recent speech denied that the oleomargarin interests were behind and actively supporting his charges against the sanitary character of the dairy products of the United States and his efforts to have the dairy industry investigated by a congressional committee. He quoted Dr. A. D. Melvin, chief of the Bureau of Animal Industry, Department of Agriculture, as expressing the belief that a large percentage of the dairy products consumed by the American people are unfit for food. Dr. E. C. Schroeder of the same bureau was quoted as saying that 2 million, or somewhat over 9 per cent., of our dairy cows had tuberculosis and are capable of transmitting the disease to children and as estimating, on the basis of New York City's experience, that 6,000 children die every year in the United States from bovine tuberculosis.

Nurses' Association Seeks Congressional Charter.—The Senate Committee on the District of Columbia has reported favorably a bill to incorporate the American Nurses' Association, as a body corporate in the District of Columbia (S. 6667). The purpose of the organization is to promote the professional and educational advancement of nurses; to establish and maintain a code of ethics among nurses; to elevate the standard of nursing education; to distribute relief to such nurses as may become ill, disabled or destitute; to disseminate information on the subject of nursing; to bring into communication with one another various nurses, and associations and federations of nurses, throughout the United States; and to succeed to all the rights and property held by the American Nurses' Association, now incorporated under the laws of the state of New York. The principal office of the organization is to be in the city of Washington, but offices may be maintained and meetings may be held at such times and places as the association may designate. The incorporators are: Annie W. Goodrich, Adda Eldredge, Elsie M. Lawler, Katherine De Wit, M. Louise Rwiss, Helen B. Criswell, S. Lillian Clayton, Jane A. Delano, Mary M. Riddle, Ella Phillips Crandall and Mathilde Krueger.

Study and Prevention of Infant Mortality.—The seventh annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Milwaukee, October 19 to 21, under the presidency of Dr. Samuel McC. Hamill, Philadelphia. Dr. William C. Woodward, Washington, D. C., is president-elect, and Dr. George C. Ruhland, health commissioner of Milwaukee, is chairman of the local committee on arrangements. The work of the association will be conducted under the following sections: obstetrics, Dr. Arthur B. Emmons, II, Boston, chairman; propaganda, Mr. George R. Bedinger, Detroit, chairman; pediatrics, Dr. Borden S. Veeder, St. Louis, chairman; governmental activities and vital and social statistics, Dr. William C. Woodward, Washington, chairman; public school education for the prevention of infant mortality, Prof. Abby L. Marlatt, Madison, Wis., chairman; and rural communities and nursing and social work, Dr. Dorothy Reed Mendenhall, Madison, Wis., chairman. The session on pediatrics will be held as a joint session with the Milwaukee County Medical Society; the session on governmental activities will be held jointly with the Committee on Vital and Social Statistics; the session on rural communities will be held jointly with the Committee on Nursing and Social Work. The subjects to be discussed include: governmental activities—federal, state and municipal—in relation to infant welfare; care available for mothers and babies in rural communities; standards for infant welfare nursing; morbidity and mortality in infancy from measles and pertussis; public school education for the prevention of infant mortality, and vital and social statistics.

United States Public Health Service Bill Favorably Reported.—The Senate Committee on Public Health and National Quarantine has reported favorably the bill to promote the efficiency of the United States Public Health Service (H. R. 204). The bill has already passed the House of Representatives. If enacted, this bill will limit the appointment of the surgeon-general of the Public Health Service to commissioned officers in the service, not lower in grade than surgeon, and require that the surgeon-general at the expiration of his four-year term of office be carried as an extra number in the grade of assistant surgeon-general, unless he be reappointed. As an inducement to physicians to enter the service, the bill provides for the promotion of assistant surgeons to the next higher grade after three years' service, instead of after four years as at present. The chiefs of the bureaus of zoology, pharmacology and chemistry in the Hygienic Laboratory, are to be commissioned by the president, by and with the advice and consent of the Senate, as professors of zoology, pharmacology and chemistry, respectively, and are to be entitled to leaves of absence as now provided by law for commissioned medical officers. Provision is made for the appointment of five additional professors, qualified for special work in sanitary engineering, epidemiology, pathology, anatomy, bacteriology, housing, or other matters that relate to the propagation and spread of disease. Men of this class, the committee's report says, often do not have medical degrees, and under the present system of commissioned service only doctors of medicine are provided for; and the bill will remove this defect and make places for men who are specially trained in these highly technical fields, but who are not graduates in medicine.

Federal Aid for Nonresident Indigent Consumptives.—A bill to provide federal aid in caring for indigent tuberculous persons (S. 5885) has been favorably reported by the Senate Committee on Public Health and National Quarantine. The bill authorizes the secretary of the treasury to pay a subvention not exceeding 75 cents a day to hospitals and sanatoriums, whether public or private, throughout the United States, for the care and treatment of indigent tuberculous persons, not legal residents of the states in which they are at the time located. Such payments can be made, however, only when the state or subdivision thereof where the hospital or sanatorium is located, or that in which the patient has a legal residence, pays a subvention not less than that contributed by the United States government. Indigent tuberculous persons may be provided by the secretary of the treasury with transportation to the respective states of their legal residences, but only for the purpose of obtaining hospital or sanatorium treatment there, and no federal aid is to be contributed toward the care of such patients after their return home. A patient accepting such transportation is to be forever thereafter barred from benefit of any kind under the proposed law, whether in the way of hospital or sanatorium benefits or of transportation. According to the committee's report, 10,000 to 15,000 consumptives go to the Southwest annually, about half of whom become objects of charity later. Tuberculosis is increasing among the native population, due, it is said, to infection spread by careless consumptive strangers, the lack of adequate hospital facilities in the Western states having made it necessary to care for most of such patients in private homes. The passage of the bill is expected to stimulate hospital construction, not only in the West but throughout all states.

It is not practicable, the committee says, to return nonresident consumptives to their home states compulsorily nor to require the home states of such patients to bear the expense of caring for them. Nor, the committee says, would it be practicable, even if considered humane, for the Western states to quarantine against tuberculous patients.

FOREIGN

Cultivation of Medicinal Herbs.—In Austria the minister of agriculture has appointed a commission to promote the cultivation of medicinal herbs. They are needed now and will prove useful even after the war and a source of income. Special efforts are to be made to cultivate the cortex Rhamni frangulae. In the Netherlands also a similar movement has been inaugurated. An exposition of medicinal plants was organized at Utrecht on the occasion of the annual meeting there last month of the National Medical Association and two weeks later of the National Pharmaceutical Association. The *Pharmaceutisch Weekblad* developed one entire issue to the subject, the *Geneeskruidnummer*, with valuable articles and abstracts on the cultivation and preparation of medicinal herbs.

Deaths in the Profession Abroad.—Prof. P. Latteux, *chef de laboratoire* at the gynecologic clinic in charge of Pozzi at the Broca hospital, aged 76. He kept up his active service to the last, having served thus for over forty years. His "Manual of Microscopic Technic," published in 1884 has passed through several editions.——Dr. F. von Ilberg, personal physician to the kaiser, at Berlin. His medical degree dates from 1882.——Dr. R. C. Delgado of Havana, Cuba, librarian of the Academia de Ciencias and secretary of several scientific societies, member of the National Board of Health, etc.——G. de Achaval, formerly instructor in the history of medicine in the University of Buenos Aires, chief of the Public Health Service of Rosario, Brazil, president of the Rosario bank, and at one time member of parliament from his province, aged 60.

PARIS LETTER

PARIS, July 20, 1916.

Statistics of Stillbirths in France

Dr. Chambrelent, agrégé professor of midwifery at the Faculté de médecine de Bordeaux, has published in the *Revue scientifique* a statistical study of stillbirths. From an examination of the last statistics published by the minister of labor and social welfare, Chambrelent concludes that the number of stillbirths constitutes an important loss in the total annual mortality of France. The coefficient of stillbirths appears to be approximately forty-seven stillborn children for 1,000 born alive, but this coefficient is seen to undergo important modifications owing to different factors. Thus, if the population of France is divided into three categories, first, Paris and the department of the Seine; second, the urban population, and third, the rural population, we arrive, for the year 1910, at the following results:

Stillbirths per 1,000 Live Births:	
Paris and the department of the Seine	62
Urban population	55
Rural population	39

Moreover, not only is the proportion of stillbirths much higher in the towns than in the country, but also in the former communities it is found to be higher the larger the population of the town. This coefficient comes out as 69 per thousand in the towns having more than 100,000 inhabitants; 61 per thousand in those having from 30,000 to 100,000, and 53 per thousand in the small towns, that is, those with between 5,000 and 30,000 inhabitants. The difference may be explained by the inferior hygienic conditions in which mothers find themselves during their pregnancy in the great towns where they are most exposed to alcoholism, syphilis and tuberculosis, factors which exercise so great an unfavorable influence on the course of pregnancy and the development of the fetus. The figure for stillbirths varies in different regions of France from the minimum of twenty-five per thousand in the department of the Creuse to a maximum of seventy-three per thousand in the department of the Alpes-Maritimes. The aspect of a map of France on which the different departments have been colored in a depth of tint proportional to the stillbirth rate shows that the variations in this figure are not irregular. The departments with the lowest figures are those of the center and the southwest, while it is in the north and in the southeast that the greatest proportional number of stillbirths occur. The causes of these differences are certainly multiple, but there is one whose influence is manifest: this is the consumption of alcohol, and especially of the liquors having a high alcohol content, absinthe, vermouth and bitter aperitifs. This fact is sharply brought out by a comparison between the stillbirth statistics and those published by J. Jacquet concerning the localization of the consumption of highly alcoholized liquor. The departments of the southeast where the stillbirth rate is the highest are also those where these liquors are consumed on the largest scale. Among other factors whose influence on stillbirth has been most clearly shown the sex of the fetus should be placed, the number of stillborn males being very considerably greater than that of stillborn females, and this is true for all the years and for all regions of France. Chambrelent would explain this fact by the greater physical development in the male fetus which aggravates the difficulties of parturition (THE JOURNAL, March 29, 1913, p. 1010; Aug. 2, 1913, p. 355). This cause of stillbirth can, in part at least, be avoided by prompter and more careful assistance to the mothers in labor. It is also important to bear in mind that the stillbirth rate among illegitimate children is almost double that among the legitimate. Undoubtedly this condition is attributable to the inferior social and, consequently, material conditions in which the girl mothers live as compared with the majority of married women. The day must come when the authorities will put forth a greater effort to protect and assist these unfortunate mothers. There will result a very considerable diminution in the excessive number of stillbirths which constitutes by no means a negligible factor of population.

Death of Dr. Henri Laussedat

Dr. Henri Laussedat, physician of the Royat watering place and president of the Société d'hydrologie de Paris, has just died at the age of 64.

The War

A PRIZE FOR THE BEST ARTIFICIAL HAND

An anonymous donor has placed at the disposition of the Société de chirurgie de Paris the sum of 50,000 francs ($10,000) to constitute a prize for the best artificial hand for the use of those who have lost that member in the war. Those constructors only may compete who are of French or allied nationality. Apparatus entered in competition must be worn by the cripple for not less than six months. Afterward they shall be tested by the society on patients chosen by it and for the period which it considers necessary. The competition will close two years after the end of hostilities. The Société de chirurgie has appointed a commission to settle the question composed of Drs. Faure, Kirmisson, Quénu, Rieffel and Rochard.

TREATMENT OF SHORTENING FROM FRACTURE OF THE FEMUR

At the Réunion médicale de la I-ère Armée, Dr. Le Fort announced that he has treated eight cases of shortening

from old fracture of the femur by suspending the patient by the feet on a reversible table (Darcissac table). The inversion is made gradually while the surgeon watches the reduction. The latter must be very slowly obtained, and the greatest precautions are indispensable to avoid brusk elongation of the vessels or nerves. In the eight cases mentioned, the shortening amounted to 4, 5, 6, 7, 7.5, 9 and 10 cm. (from 1⅗ to 4 inches), the age of the fracture 60, 67, 70, 71, 81, 84, 85 and 100 days, respectively. In each of the eight cases continuous extension had failed, and in several of them the fracture seemed completely united. The reduction was complete in six, and partial in two others, by their own choice. The inversion was generally well tolerated. The maintained reduction was obtained by a plaster cast applied during the inversion as soon as reduction is obtained. In every case the immediate history was perfectly simple. The subsequent results were excellent in six cases fully treated. The method is, of course, not applicable in every case.

EMPYEMA DUE TO WAR WOUNDS

At the Réunion médicale de le IV-e Armée, Dr. Protherat, surgeon of the Paris hospitals, discussed the formation of pus in the pleural cavity as the result of chest wounds with or without the lodgment of foreign bodies. He stated that this was not a rare complication. The condition can be diagnosed by the usual signs, and if auscultation or exploratory puncture does not suffice to clear up the diagnosis, roentgenoscopy can be called in. The treatment is pleurotomy with costal resection at the lowest point. This permits of drainage and, when possible, the extraction of foreign bodies. The pus contains a great quantity of anaerobes and is therefore often fetid, even gangrenous in odor. Usually it is possible to operate under local anesthesia, and this should generally be preferred. Two drains left in a wound permit the evacuation of pus as it forms, and allow of abundant and repeated washings, of which Potherat is a warm partisan.

It is notable that the postoperative course of these cases is very variable. At first there is a marked amelioration of the general condition which may continue to complete recovery, but not infrequently this improvement is suddenly arrested. The general condition instead of improving commences to go back, becoming worse and worse. Suppuration remains abundant and fistulas are formed. Finally the situation may suddenly become worse and the generally local conditions return to what they were at the commencement of the illness. The drains no longer yield any pus. Appropriate examination shows that a new collection of pus has formed in the thorax, which the drains are unable to reach. This course is quite different from that pursued by ordinary suppurative pleurisies, and the difference is explained in this way: In traumatic pleurisy the infected pleura reacts rapidly and attempts, by adhesive inflammation, to limit the focus of infection. When this limitation is successful, the case will go quickly to recovery; but if the inflammatory barrier is discontinuous, irregular pouches are formed of varying size communicating with the principal focus by gaps in the barrier wall. The evacuation of the pus is imperfect, therefore, and continuous suppuration leads to the condition already described. The formation of secondary isolated collections of pus is a particularly common accident in traumatic pleurisy. The surgeon, in interpreting his patient's symptoms, should bear this tendency in mind and be prepared for the appropriate intervention. A second result of this form of pleurisy is that it may cause the obliteration of the pleural culsdesac and particularly of the lower culdesac. This may result in penetration into the abdominal cavity in the course of an inferior pleurotomy.

LONDON LETTER

LONDON, July 24, 1916.

The Health of Munition Workers

The number of munition workers in this country has now reached the prodigious figure of 3,500,000, of whom 600,000 are women. The health of this large fraction of our industrial population has engaged the attention of the government. Housing, transit and individual welfare have been investigated exhaustively by the health committee, and frequent memoranda have been issued on such subjects as Sunday labor, welfare supervision, industrial canteens, employment of women, hours of work, canteen construction and equipment, industrial fatigue and its causes, special industrial diseases, ventilation and lighting of munition factories, sickness and injury. The memorandum on the last is particularly valuable in its suggestions, and it indicates a new policy in governmental supervision. The munition worker's sickness takes various forms. Lungs, heart, digestive organs, and the nervous and muscular systems may be affected, resulting in harm to efficiency, health and expectation of life. Sir James Paget is quoted as saying that fatigue has a larger share in the promotion of disease than any other causal condition. The disabling conditions are cramped attitudes during work, prolonged strain, such as lifting weights, machinery accidents, working in unventilated shops, which predispose to disease, or in shops imperfectly lighted, which means eyestrain, or in gases and vapors, which may mean poisoning. Dust may affect the lungs, and high explosives obviously expose the workers to risk. Equally important is the absence of personal hygiene; in the intensive labor of the war factories the rules of health cannot be disregarded with impunity. Indications of something wrong are found in broken and irregular time and diminished output. The committee recommends that each case of absence be recorded. Such a record is certain to disclose the existence of adverse influences. Secondly, lassitude and lessened output are the signs of the jaded worker. What are the causes? A sickness register inspected by authorized persons will probably show. The management also should study the movements of the sickness chart, for they are of great importance. Finally, there are the death certificates of workers which, though rare, may supply valuable data on the health of the factory as a whole. In a special case the sickness and accident rate in large munition works, employing 36,000 workers, rose to an unusual rate. In one department, employing a thousand men working overtime, the sick proportion was 8 per cent. Investigation proved that the workmen were rather elderly, were working fifteen hours a day, and often on Sundays, and were under constant pressure. In the prompt treatment of accidents and for the proper supervision of health of the workers, trained factory nurses have given excellent results. Besides looking after the health of the workers, they superintend the rest room, and follow up cases of sickness at home.

The Government Scheme for the Treatment of Venereal Diseases

Regulations have been issued by the Local Government Board under the public health acts requiring county councils and county borough councils to organize and carry into effect a scheme for the provision of facilities for the diagnosis and treatment of venereal diseases. The scheme follows closely the recommendations made by the Royal Commission on Venereal Diseases (THE JOURNAL, April 1, 1916, p. 1038). The commissioners found that the effects of venereal disease on the individual and the race are grave and far reaching, involving a heavy loss to the community in actual and potential population, as well as in money; and that medical evidence established the fact that by early and efficient treatment venereal disease could be brought under control.

But at present treatment is in most cases unduly deferred, and the best modern methods of diagnosis and treatment are not within the reach of the population generally. They recommended, therefore, that arrangements should be made for providing free for the whole community adequate laboratory facilities for diagnosis, combined with the provision of adequate and skilled free treatment for all persons affected, and that the organization of these arrangements should be entrusted to the councils of counties and county boroughs. The regulations made by the Local Government Board accordingly impose on the county and county borough councils the duty of providing free facilities for diagnosis and treatment. The board states that, in view of the findings of the royal commission, it has arrived at the conclusion that the conditions of the present war constitute a "case of emergency" which justifies it in calling on the councils to carry out a work which is so vitally important, especially at this moment, when the services of every man are required. Every council is required to make arrangements for enabling any physician who practices in the area of the council to obtain, at the cost of the council, a scientific report on any material which he may submit from a person suspected to be suffering from venereal disease. The arrangements are to be made in general with the authorities of the universities and large hospitals to which pathologic laboratories are attached. Any physician will be able to obtain, free of cost to himself and his patients, examinations of pathologic material, including the microscopic examination of discharges for the detection of gonococci, spirochetes or other organisms; and Wassermann tests on the blood serum of patients (a) for the

diagnosis of syphilis, and (*b*) as a control of the effect of treatment. The cost incurred by the councils will be repaid to the extent of 75 per cent. by the Local Government Board, in accordance with the recommendation of the royal commission. Every council is required to prepare and submit to the Local Government Board a scheme (*a*) for the treatment at and in hospitals or other institutions of persons suffering from venereal disease, and (*b*) for supplying physicians with salvarsan or its substitute for the treatment and prevention of venereal disease. The scheme would comprise arrangements for the establishment of special clinics for the treatment of venereal diseases at one or more hospitals which will conveniently serve the area of the council, and the provision of inpatient treatment for those cases which require it. These arrangements will be made by agreement between each council and the hospital authorities, but it is considered essential that the treatment at a particular institution should not be confined to those living within a certain area. The treatment must be available for all comers, irrespective of the place of residence or the means of the patient. A further consideration is that patients should be fully assured of the secrecy of the arrangements. The regulations require that all information obtained in regard to any person treated under the scheme shall be regarded as confidential. Under no circumstances may the names and addresses of patients be divulged by the medical officers of institutions. Similarly, the clinics provided should not be specially designated as for venereal diseases, and nothing should be done to distinguish the patients who attend for treatment of these diseases. Special stress is laid by the government on the necessity of securing the cooperation of physicians in the working of the schemes of treatment, and of framing these schemes so as to develop the ability of physicians in treating venereal diseases. But if a patient who attends at an institution is not willing to be referred to his own physician for treatment, in association with the treatment provided at the institution, there should be no refusal to treat him at the institution. Salvarsan, or its substitutes, is to be supplied gratuitously by councils to physicians who are qualified to administer it, the supply being limited to those physicians who are known to have had experience in the administration of these drugs, or who have attended for a sufficient time the practice of an institution at which the drugs are regularly administered. Physicians should be encouraged to avail themselves of the facilities provided at institutions for treatment, to attend the clinics held at these institutions, and to arrange for consultations with the medical officers of the institutions.

A separate circular has been addressed by the Local Government Board to the governing bodies of general and special hospitals, drawing attention to the importance of immediate action being taken to extend the existing facilities for the diagnosis and treatment of venereal disease, and pointing out that the measures recommended by the royal commission cannot be successful without the active cooperation of the general hospitals of the country. An assurance is given that the army council will, wherever possible, make arrangements whereby those officers of the army medical corps whose services would be of special value for this work will be enabled to devote part of their time to it, and it is made clear that no interference with the administration of the hospitals is contemplated, and that no charge need fall on the funds of the hospital which provides the required facilities. The royal commission drew special attention to the need for fuller public knowledge of the grave evils which lead to the spread of venereal disease, and the importance of wisely conceived educational measures. The Local Government Board in its regulations has conferred on the councils the power to provide instructional lectures and to publish information on questions relating to venereal disease. The councils are also recommended to form committees containing representative social workers, including a sufficient number of suitable women and representatives of the local medical committees, for the purpose of disseminating information as to the scheme of treatment and for the making of suggestions to the council.

The War

THE TREATMENT OF NERVOUS AND MENTAL SHOCK IN SOLDIERS

The terrific and unprecedented bombardments of the present war, combined with fatigue and exposure, have naturally given rise to numerous cases of nervous and mental shock. These fall into three main groups. In the first the symptoms are due to the bursting of high explosive shells near the patient or to the secondary effects of the explosion, such as burial under earth and débris or the inhalation of noxious gases. The second group includes cases of a general neurasthenic character, attributable to exhaustion of the nervous system resulting from physical and nervous strain, sleeplessness, fear, anxiety, and harassing sights and experiences. The third group includes cases of mental breakdown, mental confusion, mania, melancholia and delusional psychoses. At the commencement of the war the patients with nervous shock and neurasthenia were transferred from overseas with medical and surgical patients, and were treated in the general wards of the hospitals at which they arrived, while the patients with mental disorder were transferred to the established institutions at Netley for the treatment of mental patients in the service of the army.

As the number of cases increased, a more elaborate organization became necessary. The following is the present plan: On arrival at one of the British base hospitals abroad, the soldier's condition is investigated by a special medical officer. The patient then is sent to a section of a hospital according as his symptoms are of a neurologic or a mental character. Should he be suffering from transitory mental symptoms which subside rapidly, he is transferred from the mental to the neurologic section as soon as it is advisable to do so. For such cases special accommodation is provided so that the patient may be placed under the most suitable circumstances for rapid recovery. The patients are then labeled for transference to one of the clearing hospitals at home—if neurologic to one, if mental to another. On arriving at the clearing hospitals, or at a neurologic section in any general hospital, the patient is given treatment. If his symptoms are slight or transitory and disappear rapidly, he is sent on furlough, and later is returned to light duty. On the other hand, should the course of the disorder be less favorable or should symptoms develop which require special supervision, or if the case is likely to be protracted, or to require special treatment not available in the section, the patient may be transferred to one of the special hospitals for nervous diseases or to a special institution. If for various reasons it has not been possible to send patients home through the clearing hospitals so that they arrive directly from overseas at central or auxiliary military hospitals in which there is no neurologic section, or to which no medical officer with special experience is attached, a short period of treatment is given; but should recovery not take place within two or three weeks, the patient is transferred for treatment to the neurologic section of the nearest territorial general hospital. Neurologic cases include most forms of functional paralysis, especially paraplegia, disturbances of speech and articulation, amnesia or loss of memory, the effects of terrifying dreams, mutism, deafness, deaf-mutism, amblyopia, "bent back," tremblings and motor agitations, ticlike movements, sleeplessness, nervous debility, indecision, loss of self-confidence and the milder forms of neurasthenia, simple mental confusion, the anxiety psychoneuroses and simple mental depression. The treatment consists chiefly of rest and feeding; massage, and electrical applications in suitable cases; baths, when these seem indicated, and psychotherapy in the form of simple suggestion and occasional hypnosis. The results of treatment show 40 per cent. of patients returned to light duty, 20 per cent. invalided, and 20 per cent. transferred for further treatment to special institutions.

In mental cases the patients are examined by the special medical officers attached to the hospital. All patients suffering from the severer psychoses of a certifiable type are given two or three weeks' probationary treatment. If no recovery has taken place during this time, they are transferred to a special hospital. The number of patients who recover during their stay and are returned to light duty is negligible. The patients transferred to the mental hospitals are of a certifiable type and include most of the severe forms of acute mental disorder—the confusional psychoses, mania, the graver melancholias, acute delusional and hallucinatory psychoses, dementia praecox, mental deficiency with confusion, general paralysis of the insane, and epilepsy with mental symptoms. In accordance with accepted policy, none of the patients in these hospitals is certified as a person of unsound mind. Each patient is given a reasonable period of treatment with a view to recovery. In consequence, however, of the accumulation of chronic and incurable cases which was observed a few months ago, all cases of general paralysis of the insane, of epilepsy with insanity, and all patients who had been in asylums prior to enlistment are sent to asylums. A certain number of chronic cases are also sent if no improvement is recorded after a reasonable period of observation and treatment.

Marriages

WILLIAM WILLIAMSON, M.D., to Mrs. Emily Chartres-Martin, both of San Diego, Calif., at Los Angeles, July 15.

SAMUEL WHEELES MCKELVEY, M.D., Kankakee, Ill., to Miss Anna McCumisky of Anna, Ill., at East St. Louis, July 19.

ERNEST PERCY CHARTRES-MARTIN, M.D., to Miss Margaret King Ascher, both of San Diego, Calif., July 18.

CECIL HENDRY WILSON, M.D., Bartow, Fla., to Miss Sarah Esther Ashton of Laird, Colo., recently.

JOHN ROGERS PARRY, M.D., Lima, Ohio, to Miss Dorothy Moitz of Philadelphia, June 26.

FRANK B. CROSS, M.D., to Mrs. Josephine Thrall Stoll, both of Cincinnati, July 14.

JOSEPH D. SULLIVAN, to Miss Mabelle Marie Smith, both of Kenosha, Wis., July 20.

ROSCOE WALKER, M.D., Pawhuska, Okla., to Miss Artie Lee Gorsuch, Denver, June 28.

COLE F. SMITH, M.D., to Miss Ada B. Cecil, both of San Antonio, Texas, July 21.

Deaths

Jacob H. Hartman, M.D., Baltimore; University of Maryland, Baltimore, 1869; aged 69; a Fellow of the American Medical Association and vice president of the American Laryngological Association in 1883 and 1890; a specialist in diseases of the ear, nose and throat; surgeon to the Baltimore Eye, Ear and Throat Charity Hospital; lecturer on diseases of the throat and chest in Washington University from 1874 to 1877; consulting surgeon to the Baltimore Hospital for Consumptives; died in Mercy Hospital, Baltimore, July 28.

James Franklin Heady, M.D., Glendale, Ohio; Miami Medical College, Cincinnati, 1878; aged 64; treasurer, clinical lecturer on medicine and professor of medical economics in his alma mater; a member of the Cincinnati Obstetrical Society and Cincinnati Academy of Medicine; vice president of the First National Bank of Lockland, Ohio, and medical director of the Cincinnati Life Insurance Company; treasurer of the village of Glendale; died at his home, July 24, from arteriosclerosis.

Frederick Rankin Charlton, M.D., Indianapolis; Medical College of Indiana, Indianapolis, 1894; University of Pennsylvania, Philadelphia, 1896; aged 43; a Fellow of the American Medical Association; a fellow of the American College of Surgeons; a member of the American Urological Association and the Association of Military Surgeons of the United States; professor of genito-urinary diseases and surgery in Indiana University, Indianapolis; a member of the consulting staff of the Indianapolis City Hospital and Dispensary; a medical officer of the Indiana National Guard for several years with service in the Spanish-American War; died at his home, July 29.

Gilbert LaFayette Pritchett, M.D., Fairbury, Neb.; Rush Medical College, 1878; aged 67; formerly a Fellow of the American Medical Association; a member of the Association of Military Surgeons of the United States, and International Association of Railway Surgeons; major and surgeon, Nebraska National Guard, retired, with active service as brigade surgeon in the Sioux Indian War in 1890-1891; local surgeon for the Rock Island System; mayor of Fairbury in 1890; died at his home, July 28.

Michael Kelly, M.D., Fall River, Mass.; Bellevue Hospital Medical College, 1885; aged 61; a member of the Massachusetts Medical Society; a member of the attending staff of Union Hospital, Fall River, and St. Vincent's Orphan Home and the Seaside Home for Sick Children; consulting physician to the Fall River City Hospital; for nine years chairman of the Municipal Board of Health; died at his summer home in Tiverton, R. I., July 28.

Otho C. Wright, M.D., Jarratt, Va.; College of Physicians and Surgeons, Baltimore, 1893; aged 48; a Fellow of the American Medical Association; a member of the State Board of Medical Examiners and State Board of Health and once president of the Medical Society of Virginia; while driving his automobile over a grade crossing at Owen's Store, July 8, was struck by an Atlantic Coast Line freight train and instantly killed.

Dennis W. Sturdevant, M.D., Laceyville, Pa.; University of Vermont, Burlington, 1884; aged 57; a Fellow of the American Medical Association; local surgeon for the Lehigh Valley Railroad and a member of the Lehigh Valley Association of Railway Surgeons; one of the best known practitioners of northeastern Pennsylvania; a director of the Grange Bank, Laceyville; died at his home, June 23, from dilatation of the heart.

Francis Joseph Woodman, M.D., Washington, D. C.; George Washington University, Washington, D. C., 1885; aged 64; a Fellow of the American Medical Association; chief medical examiner in the pension office; a medical officer of the National Guard of the District of Columbia from 1899 to 1909 when he was retired as major, Medical Corps; died at his home, July 28.

William Ormer Majilton, M.D., New York; New York University, New York, 1881; a member of the Medical Society of the State of New York and for twenty-five years a practitioner of the Tremont section; at one time in charge of the medical department of the construction work on the Croton aqueduct; died at his home, July 26.

Russell Henry Roof, M.D., New York; Bellevue Hospital Medical College, 1878; aged 65; medical inspector of the Department of Charities and Correction of New York from 1878 to 1883; and visiting physician to the House of Refuge, Randell's Island, from 1884 to 1896; died in a sanatorium in Stamford, Conn., July 27.

Frank Hammett Holt, M.D., Chicago; Harvard Medical School, 1899; aged 47; a Fellow of the American Medical Association; superintendent of the Michael Reese Hospital, Chicago; formerly assistant superintendent of the Boston City Hospital; died in Michael Reese Hospital, August 3, from nephritis.

James H. Lackey, M.D., Nashville, Tenn.; Cincinnati College of Medicine and Surgery, 1874; aged 68; formerly a Fellow of the American Medical Association; representative from Trigg County, Ky., in the legislature in 1898; died at his home in West Nashville, July 26, from angina pectoris.

Samuel William Hammond, M.D., Lambert's Point, Norfolk, Va.; University of Maryland, Baltimore, 1905; aged 43; while answering a professional call, July 23, sustained a skull fracture in a collision between his motorcycle and a trolley car, and died in the Norfolk Protestant Hospital, July 24.

Lyman Beecher Shehan, M.D., Superior, Wis.; Medical School of Maine, Brunswick, 1884; aged 61; formerly a Fellow of the American Medical Association; acting assistant surgeon, U. S. P. H. S.; formerly health commissioner of Superior; died at his home, July 27, from diabetes.

Charles Kelly Briddon, M.D., New York; College of Physicians and Surgeons in the City of New York, 1857; aged 90; for twenty-four years consulting surgeon to the Presbyterian Hospital, New York; surgeon of volunteers throughout the Civil War; died at his home, July 31.

Erastus Edwin Eads, M.D., Los Angeles, Calif.; American Medical College, St. Louis, 1879; aged 75; died at his home, July 24, from the effects of cyanid of potassium, self-administered, it is believed, with suicidal intent, while despondent over business troubles.

Asa Harvey, M.D., Canon City, Colo.; Eclectic Medical Institute, Cincinnati, 1875; American Medical College, St. Louis, 1878; Colorado School of Medicine, Boulder, 1894; aged 63; formerly a Fellow of the American Medical Association; died at his home, July 26.

L. Frank Ellison, M.D., Wilmington, Del.; Jefferson Medical College, 1866; aged 75; for one term a state senator from New Castle County and also a member of the New Castle County Levy Court; died at the home of his brother-in-law in Kirkwood, Del., July 26.

Dorran Benjamin Coze, M.D., Chino, Calif.; Dartmouth Medical School, Hanover, N. H., 1888; aged 70; a member of the Rhode Island Medical Society; for many years a practitioner of Riverside, R. I.; died in Chino, April 2, from sarcoma of the left femur.

Andrew P. Wilson, M.D., Los Angeles; University of Southern California, Los Angeles, 1902; aged 39; a Fellow of the American Medical Association; was accidentally shot and killed at Helm Meadows while on a hunting trip in the Sierras, July 20.

William M. Hall, M.D., Conshohocken, Pa.; Jefferson Medical College, 1883; aged 55; formerly a member of the Medical Society of the State of Pennsylvania; died at his home, July 25, after an operation for disease of the intestines.

Edward F. Bucking, M.D., Chicago; Bennett Medical College, Chicago, 1876; Louisville (Ky.) Medical College, 1877; aged 59; formerly a Fellow of the American Medical Association; died in his apartment in Chicago, July 29, from heart disease.

Ammon Andrew Apple, M.D., Philadelphia; Jefferson Medical College, 1890; aged 63; for forty years a druggist of northeast Philadelphia; died in the Episcopal Hospital in Philadelphia, July 27, from pulmonary embolism.

George Arthur Stone, M.D., Pigeon Cove, Mass.; Harvard Medical School, 1889; aged 52; a member of the Massachusetts Medical Society; and a member of the local school board for seven years; died at his home, July 21.

Edward James Gable, M.D., New Albin, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1897; was caught under his overturned automobile, July 23, sustaining injuries which caused his death a few hours later.

Bruno H. Schacht, M.D., West Point, Calif.; California Medical College, San Francisco, 1886; aged 64; formerly an apothecary in the United States Navy; died at his home, May 21, from tumor of the esophagus.

Benjamin Wolff, M.D., New York; Baltimore University, 1901; aged 42; assistant surgeon for the eye and ear departments of Sydenham Hospital and the German Policlinic; died at his home, July 23.

George S. Crawford, M.D., Clifty, Ind.; Medical College of Indiana, Indianapolis, 1874; aged 63; a member of the Indiana State Medical Association; died at his home, July 23, from cerebral hemorrhage.

Ulysses Grant Grigsby, M.D., Perry, Iowa; Eclectic Medical Institute, Cincinnati, 1896; aged 48; died at his home, July 26, as the result of injuries received in an automobile accident five days before.

Joseph Getzwiller, M.D., Goliad, Texas; New York University, New York, 1880; aged 74; was instantly killed, July 22, when his automobile plunged off a bridge into a ravine.

George W. Righter, M.D., Cynthiana, Ky.; Homeopathic Hospital College, Cleveland, 1872; aged 72; a Confederate veteran; died at his home, July 25, from arteriosclerosis.

Joseph P. Ewing, M.D., Manchester, N. C.; Baltimore University, School of Medicine, 1892; formerly of Dillon, S. C.; died at a hospital in Fayetteville, N. C., July 21.

Peter Joseph Rowan, M.D., Chicago; University of Toronto, Ont., 1870; aged 69; a Fellow of the American Medical Association; died at his home, July 29, from pneumonia.

William F. Fairbanks, M.D., Kansas City, Kan.; Western Reserve University, Cleveland, 1886; aged 56; a member of the Kansas Medical Society; died at his home, July 21.

Spencer Joseph Way, M.D., Kankakee, Ill.; Rush Medical College, 1872; aged 65; a member of the Illinois State Medical Society; died at his home, July 30.

William Lee Lovett M.D., Norman Park, Ga.; Atlanta College of Physicians and Surgeons, 1913; aged 36; died at his home, July 21, from pneumonia.

Herman G. Griebel, M.D., Fort Wayne, Ind.; Fort Wayne College of Medicine, 1902; aged 34; died in a hotel in Indianapolis, July 28, from acute nephritis.

William Langley, M.D., Angelica, N. Y.; University of Wooster, Cleveland, 1891; aged 40; died in Buffalo, July 22, from cerebral hemorrhage.

William S. G. Dillahunt, M.D., Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1878; aged 64; died at his home, July 28.

Harry Z. Landis, M.D., Memphis, Tenn.; University of Pennsylvania, Philadelphia, 1877; aged 64; died at his home, July 28.

Herbert J. James, M.D., Bathgate, N. D.; Queens University, Kingston, Ont., 1893; aged 47; a Fellow of the American Medical Association; died at his former home, Almonte, Ont., July 9.

Oliver McLahlan, Oolitic, Ind.; (license, Indiana, 1897); aged 61; a practitioner for twenty years; died at his home, about July 9.

Bert M. Torbett, M.D., Marlin, Texas; Vanderbilt University, Nashville, Tenn., 1916; aged 32; died in Nashville, July 13.

Jacob David Patterson, M.D., Stamford, Conn.; New York University, New York City, 1885; aged 57; died at his home, July 28.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

WINE OF CARDUI SUIT

(Concluded from page 460)

June 8, 1916, Morning

It was stated by attorneys for both sides that the witnesses produced by the plaintiff were the witnesses whose names were given in evidence by witnesses for the defendant.

TESTIMONY OF MRS. JOHN A. PATTEN

Mrs. John A. Patten was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. HOUGH

Mrs. John A. Patten testified that she resides in Chattanooga, Tenn. Her husband is dead and she has two daughters.

Objection was made to the witness on the ground that she was the wife of Mr. John A. Patten. Argument was made by attorneys on both sides and statutes and cases cited. The Court stated that in his opinion it was competent to produce this witness, but to avoid possibility of error the witness was withdrawn by the plaintiff's attorneys.

TESTIMONY OF MR. ZEBOIN C. PATTEN, JR.

Mr. Z. C. Patten was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. HOUGH

Mr. Patten testified that he resides in Chattanooga, Tenn. He is one of the plaintiffs in this case, being a member of the partnership composed of John A. Patten and Z. C. Patten, Jr. He is 41 years of age. He became connected with the Chattanooga Medicine Co. in 1893. He has been clerk in the addressing department, worked in the bookkeeping department, in the order and shipping department, the credit department, and later, as associate partner, had charge of the financial end of the business, and general charge of the office.

The witness stated that he believes and always has believed that Wine of Cardui was a valuable remedy for the purpose for which the company sold and recommended it. He was asked on what he based his belief, the Court ruling that the question was incompetent.

Mr. Patten stated that from 50,000 to 60,000 druggists and merchants handle Wine of Cardui. He stated that he knew from his uncle, his father and from his brother that they regarded Wine of Cardui as a valuable remedy. He saw thousands of letters that come to the company and statements brought in by salesmen from druggists, indicating the benefit that their customers have received from the medicine. All this strengthened his belief that this medicine was useful and a valuable remedy. He knew of its use in his family and in the family of friends. He never knew of the medicine being used as a beverage. Frequently women wrote that they had difficulty in taking the medicine because it nauseated them.

The witness stated that he had personally not read all of the letters that appear in bound volumes—the letters which were offered in evidence. He read a large number at different times, but he could not say exactly how many.

Mr. Patten testified that Dr. John W. Mallett, a chemist, during 1906 endeavored to reduce the content of alcohol contained in the preparation. The percentage was reduced to 17 per cent., and owing to the fact that letters were received concerning the spoiling of the medicine the per cent. was raised to 20 per cent.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

Mr. Patten testified that his particular duties were the financial part of the business and charge of the general

office work. The receiving and filing of testimonials was conducted in the Ladies' Advisory Department. The mail that is received is sorted by mail clerks and sent to different departments. For many years Mr. John A. Patten opened the mail, later the witness took charge of that work, and finally it was turned over to confidential clerks. The witness himself opened the mail for four or five years after the partnership was formed in 1906.

The witness stated that the testimonial letters eventually go to the Advertising Department, which is near the Advisory Department. Mr. Wheatly has general charge of the Advertising Department, probably since 1903. He stated that he would frequently see testimonials in both the Advisory and Advertising Departments and sometimes those that were published. He could not distinguish which testimonials he had seen. He could not say definitely that he had read the testimonials which appeared in the Home Treatment Book for 1912 or for 1913. He does not know that testimonials have been changed from one edition to a different form in another. There was then read to the witness several testimonials from the 1912 book and the same testimonials from the 1913 book, with the exception that certain words were changed. He stated that he did not know how this occurred. He does not know if they received two letters in the same language with a single exception, but he believes they must have received two letters. The witness promised to ask his Advertising Council and produce the testimonials in Court if possible.

An adjournment was taken until 2 o'clock the same day.

June 8, 1916, Afternoon

TESTIMONY OF MR. Z. C. PATTEN, JR. (*continued*)

The Court met pursuant to adjournment. Mr. Patten resumed the stand and testified in his own behalf.

FURTHER CROSS-EXAMINATION BY MR. T. J. SCOFIELD

Mr. Patten stated that he had found the testimonials. Mr. Hough stated that he would produce them. Mr. Scofield then read to the witness several testimonials which appeared word for word in the 1912 and 1913 Home Treatment Books for Women with the exception of the addition of the words "and cardoseptic," or the substitution of the word "cardoseptic" for Wine of Cardui in the later edition. The witness could not say that he took these testimonials into account as a basis for his belief in Wine of Cardui, nor does he know how the changes occurred.[1]

The witness promised to produce the testimonial of Mrs. Loula Walden, taken from the Ladies' Birthday Almanac for 1915. Mr. Patten testified that he is one of the directors of the Proprietary Medicine Association.

REDIRECT EXAMINATION BY MR. HOUGH

Mr. Patten testified that Cardoseptic is a tablet to be dissolved in water and used as a douche. It was originally called "Cardui Wash" and later called "Cardoseptic." It was manufactured for the Chattanooga Medicine Co. by Parke, Davis & Co. The witness stated that the testimonials appearing in the Home Treatment Book for 1912 and 1913 were based on the parts of several letters received from the various witnesses.

1. Some of those testimonials which, while practically verbatim in the 1912 and 1913 editions, respectively, of the "Home Treatment for Women" had been modified to introduce "Cardoseptic" are here reproduced in miniature:

1912 Edition

1913 Edition

Mr. Hough then read in evidence the various letters received from the women whose names appear as testimonials in the Home Treatment Books which were originally read by Mr. Scofield.

Mr. Patten stated that the Association of Proprietary Medicine Manufacturers have no financial interest in the present case and have not assisted in paying the expenses.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he could not say whether or not cardoseptic deteriorates.

REDIRECT EXAMINATION BY MR. HOUGH

The witness stated that cardoseptic is a tablet to be dissolved in water and used as a douche.

DEPOSITIONS

After argument Mr. Hough read to the jury the names of the various persons who gave depositions not yet in evidence.

The attorneys for the plaintiff thereupon rested their case in rebuttal.

Defendant's Testimony

The defendants thereupon offered the following evidence in surrebuttal:

TESTIMONY OF DR. W. D. HAGGARD

Dr. W. D. Haggard was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. W. D. Haggard testified that he is located in Nashville, Tenn. He is 44 years old. He graduated from the University of Tennessee in 1893. He served a year as an intern in the National City Hospital, and two years in the Woman's Hospital of the State of New York, as House Surgeon, and then began the practice of medicine. He was Professor of Gynecology and Diseases of Women in the University of Tennessee for about twelve years, and Surgeon to the City Hospital, as well as Gynecologist at St. Thomas' Hospital. For about seven years he conducted a private infirmary in Washington. He has had considerable experience in the diseases of women.

The witness testified that he knows Mrs. J. M. Willis, who lives near Nashville, and has known her for thirteen or fourteen years. He operated on her thirteen or fourteen years ago for abscess of the fallopian tube—one on either side. Several years ago he operated on her for gallstones, and also proposed to operate on her for falling of the womb. He considered the operation for gallstones all he could safely do at that time; at that time the uterus was just beginning to hang out into the world. He has advised operation for this condition. At present the condition of the womb is such that it hangs into the world every time the patient stands on her feet. He examined her three weeks ago; he found that the condition of prolapse has steadily increased since he examined the patient several years ago. The patient has had congestion of the uterus sufficiently severe to confine her to bed. The general health of the patient has not been good in the last two or three years. The patient has been unable to do her work and has been confined to her bed for days at a time during the last few years.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that at the time he performed the operation for gallstones he replaced the womb, but it came down the moment he got through replacing it.

Q.—How long did you make the examination after you saw Dr. Heizer, since this case was on trial, or you received a letter from him—*A.*—I never saw Dr. Heizer before today in my life, and I never received a letter from him on earth.

Q.—Who asked you to make the examination of this woman? *A.*—Dr. McCormack.

Q.—The Dr. McCormack that is here? *A.*—Yes, sir.

Q.—And that has been here through the trial. Did you go to this woman and tell her that you came there representing the Board of Health of your state— *A.*—No, sir.

Q.—and demanding that the woman permit the examination? *A.*—No, sir; I went in no such false capacity.

Q.—Did she call on you to have the examination made? *A.*—I called—

Q.—Did she call on you? *A.*—I called on her.

Q.—You called on her to have the examination made? *A.*—I called on her.

Q.—You called on her at the request of Dr. McCormack? *A.*—I did.

Q.—Yes. Because she was a patient of yours? *A.*—Yes, sir; exactly.

Q.—To make an examination for the purposes of this case? *A.*—To see what her true condition is.

Q.—No, to make an examination for the purposes of this case?

THE COURT:—Mr. Walker, you are not testifying, the witness is. He says one thing, and you another.

Mr. Walker:—I will change the form.

THE COURT:—I mean, we must understand who is giving the evidence.

Mr. Walker:—Yes, I will change the form. I think we will understand it. I will change the form.

Q.—Didn't you make the examination for the purpose of testifying in this case? *A.*—I made the examination for the purpose of disclosing her true condition at the present time.

Dr. Haggard stated his conversation leading up to his examination of Mrs. Willis.

TESTIMONY OF DR. HUGH M'GUIGAN

Dr. Hugh McGuigan was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. McGuigan testified that he is a physician residing in Chicago, specializing in pharmacology. He graduated from the Rush Medical College in 1908; the North Dakota Agricultural College in 1898, in the chemistry course. He received the degree of Ph.D. from the University of Chicago in 1906. He has studied at the University of Michigan and a year at the University of Heidelberg, specializing in food, chemistry and pharmacology. He is a Professor of Pharmacology at the present time in the Northwestern University Medical School and has been for six years.

Q.—In connection with your work in pharmacology, have you done any special research work of any kind? *A.*—Yes. I have done work on a number of lines. I worked first perhaps on the oxidization of sugars in dead bodies. When I was in Heidelberg I worked with Professor Gottlieb on the action of drugs on the uterus. I have worked also on morphin, strychnin, formaldehyd, adrenalin, ammonia, atropin, pilocarpin, and a number of others. I have published in all, I think, 30 or 40 papers. I cannot recall all of them.

Q.—Did you do this work on animals, Doctor, or how? *A.*—On animals, yes, sir.

The witness stated that he had performed experiments the same as those of Dr. Mason, which were performed for the plaintiff in an endeavor to discover the potency of drugs contained in Wine of Cardui.

Objection was made by the plaintiff to the introduction of such testimony as incompetent. Argument was made extensively by attorneys for both sides. The Court ruled that the witness might be asked questions as to Dr. Mason's methods to find out if the methods were proper, but the fact remains that Dr. Mason said the guinea-pig died, because of something he did to it.

Dr. McGuigan testified that he had read Dr. Mason's testimony; he has examined the chart which Dr. Mason introduced in the case. From an examination of this evidence he is of the opinion that the experiments show nothing as to whether Wine of Cardui contains a potent principle. The examination made by Dr. Mason was not complete in any detail. The only thing that he could conclude is that the guinea-pigs died. The cause of their death he could not tell in any way or form. He might have determined the cause of death by a postmortem examination or by making some more experiments, but there is no evidence that in his experiments the drug killed the animals. The witness has made postmortem examinations in similar cases to determine the cause of death of animals. It is usually customary for a pharmacologist to make an examination to determine the cause of death.

The jury was excused at this point.

Mr. Scofield made an offer to the Court to show that Dr. McGuigan repeated Dr. Mason's work. Dr. Mason's work was entirely on ten guinea-pigs; three died and seven lived. Of the three which died, postmortem showed that death was caused in one by perforation of the bowels with a needle and the other two died by infection. He also offered to introduce similar evidence by other witnesses who had repeated the experiments of Dr. Mason. Objection to this offer was made, and the objection was sustained.

An adjournment was taken until Friday, June 9, 1916, at 10:30 o'clock a. m.

June 9, 1916, Morning

TESTIMONY OF DRS. ARTHUR S. LOEVENHART

The Court met pursuant to adjournment. Dr. Arthur S. Loevenhart was called as witness for the defendants in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Loevenhart stated that he testified in this case before. He is familiar with the experiment performed by Dr. Mason, the chart exhibit and the methods by which Dr. Mason conducted these experiments. Dr. Loevenhart considered that the conclusions which Dr. Mason drew were not justified from the experiments because the experiments were so faulty in some respects that it was impossible to draw such conclusions. The witness was asked in what respects the experiments were faulty. Objection was made to the question and overruled. The witness answered:

The Witness: A.—In the first place, the handling of the guinea-pigs was faulty. Dr. Mason describes having held the guinea-pigs by placing the head and front paws in a wide mouthed bottle. This is not a justifiable manner of holding the guinea-pig, because if the bottle fits tightly enough around the head and front paws, there is danger of suffocation of the animal.

In the second place, if it does not fit tightly enough around the head and front paws, it will admit of struggling on the part of the animal, in the course of which struggling, due to the pricking of the skin by the needle, they are likely to hit their heads against the neck of the bottle, and with these delicate little animals, it is very easy for them to produce by such struggling a hemorrhage at the base of the brain, which might result fatally in from five minutes to an hour.

In the second place, the experiments were faulty because there was no effort to remove the hair from the abdomen either by shaving or plucking the hair from the site of the injection.

In the third place, the swabbing of the abdomen with alcohol, as described by Dr. Mason, is insufficient to sterilize the surface of the abdomen with the hair not removed in that way.

In the fourth place, no precaution was taken to prevent the needle from being inserted so deeply as to do serious injury to a vital organ of the chest or abdomen, in the course of the injection and the struggling.

In the first place, I believe that Dr. Mason testified that he did not know what had been previously in the syringe before making the injection, which is essential of course for the pharmacologist to know, he should know what had been previously in the syringe and that it had been thoroughly cleansed, and the whole experiments were very faulty in this regard, that in case of death of the animal within such a short period as he described, in two of his experiments (guinea-pigs No. 5 and No. 6) within 17 and 29 minutes respectively, the failure to do an autopsy would prevent—in such a rapid death to determine whether the animals had died as a result of the drug, or as the result of physical violence by the needle or by the holding and struggling—would prevent any competent pharmacologist from drawing any conclusion as to what was the cause of death in those cases.

Q.—Doctor, I will ask you whether or not an autopsy or an examination of the body of the dead animal, a postmortem examination, would have disclosed the cause of death.

Dr. Loevenhart stated that the postmortem examination would show the cause of death. In his opinion the death of the guinea-pigs used by Dr. Mason was not produced by the medicine because if the experiment had been done correctly and with proper precautions the guinea-pigs would not have died, as Dr. Loevenhart himself has shown in ten guinea-pigs. The Court ruled that the last phrase might be stricken out.

The witness was asked whether or not alcohol which is taken through the mouth in such quantities that it is almost completely oxidized in the body may still produce consequences which are harmful to the individual who takes it. The witness stated that the alcohol may still produce harmful effects. It will still produce its toxic effect before it undergoes oxidation.

Mr. T. J. Scofield:—Now, will you explain how that may happen, how the oxidation occurs and how the toxic effect of alcohol is disseminated in the system? *A.*—It is true that alcohol will oxidize in the body to carbon dioxid and water, both of which have no action in the body, and, after it has been so oxidized it is inert. On the other hand, alcohol taken into the body is absorbed into the blood circulation throughout the body, and the tissues take up the alcohol from the blood in proportion to its concentration in the blood. The more concentrated it is in the blood, the more concentrated it will be in the tissues, the brain, the liver and the kidneys and all the organs.

As it is gradually oxidized—there is no evidence that the alcohol is quickly or suddenly oxidized, as soon as it is absorbed. It remains in the body a certain time after it is ingested, and as the alcohol is gradually oxidized, it passes back from the tissues into the blood again, or is oxidized in the tissues and before it is oxidized it exerts all of its deleterious and harmful effects in the tissues, as shown by the fact that even small amounts of alcohol, such as a single glass of beer or a single drink of a stronger beverage, such small quantities as are almost completely oxidized in the body, produce flushing of the face, and talkativeness and other evidences of incipient intoxication, in spite of the fact it will be ultimately oxidized to carbon dioxid and water. It is before it is oxidized that it exerts its pharmacological and toxicological action.

CROSS-EXAMINATION BY MR. HOUGH

The witness stated that postmortem examination will distinguish between death by chemical means and death by violence. An autopsy supplemented by chemical analysis, if the latter is successful, will in all cases disclose the cause of death.

TESTIMONY OF DR. EDWARD E. REISMAN

Dr. Edward E. Reisman was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Reisman testified that he is a surgeon residing in Chattanooga, and a member of the staff of the Erlanger Hospital. He is acquainted with Mrs. Louise Gokey. Objection was made to the testimony as not proper. The Court overruled the objection. The witness stated that he operated on Mrs. Gokey for removal of both fallopian tubes, two broad ligament cysts and an appendectomy. There were very dense adhesions. Objection was again made to the testimony on the ground that it was not proper.

Mrs. Gokey had stated in her deposition in reply to the question "What is your condition of health now?" Answer: "Fine, good health."

The witness stated that from the history of the case of Mrs. Gokey she must have suffered from this condition at the very shortest from eight to twelve months. He stated that such a condition would cause a woman to have irregular menstruation and flooding. In his opinion this condition might have produced pain.

Dr. Reisman testified that Mrs. Gokey gave him her history at the time of examination—namely, that this trouble had been going on for several months, and that she was suffering with pain in her lower abdomen, intermittent and irregular flow. She thought at first that she was probably pregnant and she sought medical advice primarily for this condition. She stated that she had been suffering for several months. Mrs. Gokey came to Dr. Reisman through Dr. Roberts, her family physician. At the time she came to him he knew nothing whatever concerning the fact that she testified in this case.

Mrs. Gokey told Dr. Reisman after the operation, when he had explained to her its nature, that she had given a deposition relative to the curative effects of Wine of Cardui. The Court ruled on objection that the part of the testimony referring to the woman having pain might be stricken out; the balance might stand.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that Mr. Z. C. Patten, Jr., is trustee of the hospital in which he is surgeon.

The attorneys for the plaintiff moved that the entire testimony be stricken out. The Court stated his ruling the same as before, and exception was taken.

TESTIMONY OF DR. G. M. ROBERTS

Dr. G. M. Roberts was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Roberts testified that he is a physician practicing in Chattanooga. He is acquainted with Mrs. Gokey. Mrs. Gokey came to him Feb. 25, 1916, complaining of enlargement and stating that she was possibly pregnant. She stated that she had pain in both sides and that she had suffered in this way since she was married, which was about 14 months. He examined the patient and found a mass on each side of the uterus, vaginitis and tenderness. Objection was made to the testimony and overruled. He recommended that the patient consult Dr. Reisman, the previous witness.

The witness agrees with everything Dr. Reisman said.

Dr. Roberts stated that he knows Mrs. W. M. Irwin. Mrs. Irwin came to see him. He was at her house about the 15th of March, 1916. Mrs. Irwin told him that she was still suffering with her female trouble, leukorrhea, etc.

The Court ruled that the evidence in regard to Mrs. Irwin might be stricken out as not proper surrebuttal.

The witness stated that Dr. Reisman is surgeon of the Baroness Erlanger Hospital, where Mr. Z. C. Patten is Trustee, and there is a record of the operation in the hospital.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he is not a member of his local medical organization. He was recently suspended for neglecting to pay his dues. He has not received any letter regarding this suit. His expenses are being paid by Dr. Reisman. Dr. Reisman brought him to Chicago.

TESTIMONY OF MR. JOHN P. LISTER

Mr. John P. Lister was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Lister testified that he resides in Gadsden, Ala. He was sheriff one term and deputy sheriff twelve years. He has an extensive acquaintance in the city and county. He has known Dr. Appleton for twelve years. He believes Dr. Appleton's general reputation for truth and veracity is good. He would believe him on oath.

CROSS-EXAMINATION BY MR. WALKER

Dr. Appleton is not the witness' family physician, although he has treated him at times. He has not treated any members of the witness' family. The witness is now special agent for the Queen & Crescent Railroad, looking after lost freight claims. Dr. Appleton saw the witness about coming to Chicago. He has never heard Dr. Appleton's character discussed.

TESTIMONY OF DR. M. B. HUGHES

Dr. M. B. Hughes was called as witness for the defendant in surrebuttal.

Dr. M. B. Hughes testified that he resides in Gadsden, Ala., and has practiced in that city for ten years. He is acquainted with Dr. Appleton. They have consulted together at times. He considers Dr. H. L. Appleton's reputation for truth and veracity as good and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he had never heard anyone say anything derogatory to the character of Dr. Appleton. Dr. Hughes is a member of his local and state society. He subscribes for THE JOURNAL.

TESTIMONY OF DR. JOHN P. STEWART

Dr. John P. Stewart was called as witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. John P. Stewart testified that he resides in Attala, Ala., of which he is mayor. It is about five miles from Gadsden. Attala is a town of about 3,000 to 5,000. He has been practicing 31 years. He has known Dr. Appleton since 1903. The witness at first thought it was 1908 when Dr. Appleton was elected president of the Tri-State Medical Association. He then remembered that he met him when Dr. Appleton was made a member of the Knights of Pythias. The witness stated that he is a politician and knows everybody. He has never heard the reputation of Dr. Appleton questioned, and he would certainly believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he does not know Mr. Wharton or Mr. Cobb. He does know Drs. Johnson and Murphy. He has never heard Dr. Appleton's character questioned. So far as he knows, Dr. Appleton has never held any political office.

TESTIMONY OF MR. FRANK M. COTTLE

Mr. Frank M. Cottle was called as witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Cottle testified that he is in the drug business in Gadsden, Ala., where he has been for thirty-six years. He knows Dr. H. L. Appleton and considers the general reputation of Dr. Appleton for truth and veracity as good and would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he arrived in Chicago the day before testifying, with him was Drs. Stewart and Hughes and Mr. Lister.

Dr. Appleton's office is across the street from the witness' drug store. Dr. Appleton showed him his testimony. The witness has never spoken to anyone concerning Dr. Appleton's character. There is no commission arrangement between the witness and Dr. Appleton concerning prescriptions.

An adjournment was taken until 2 o'clock the same day.

June 9, 1916, Afternoon

TESTIMONY OF MR. J. C. HUNTLEY

The Court met pursuant to adjournment. Mr. J. C. Huntley was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. J. C. Huntley stated that he has resided in Ruby, S. C., for eighteen years, where he is agent of the Chesterfield & Lancaster Railroad Company, which position he has held for twelve years. He knows practically everybody in the community. He knows Dr. R. M. Newsom, who has boarded with him for five years. He considers Dr. Newsom's reputation for truth and veracity as good and would believe him on oath.

CROSS-EXAMINATION BY MR. HOUGH

The witness identified the signature of Dr. Newsom. He stated that he has never heard Dr. Newsom's reputation for truth and veracity discussed. Dr. Newsom did not talk with the witness about the testimony he has given in this case. Dr. Newsom is the family doctor of the witness. He has seen Miss Erwin, but never met her. He stated that he does not know C. J. Huntley of Ruby, S. C.

TESTIMONY OF MR. J. F. CRAWLEY

Mr. J. F. Crawley was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Crawley testified that he lives in Ruby, S. C., where he is engaged in farming. He knows everybody in that section of the country. He has known Dr. Newsom for five years, and considers his general reputation for truth and veracity as good, and would believe him under oath.

CROSS-EXAMINATION BY MR. HOUGH

Dr. Newsom is the witness' family physician. He knew that Dr. Newsom came to Chicago a month and a half ago to testify. He has never heard Dr. Newsom's reputation questioned. Dr. Heizer asked the witness to come to Chicago.

TESTIMONY OF REV. A. B. SMITH

Rev. A. B. Smith was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Rev. A. B. Smith testified that he resides in Ruby, S. C. He was a farmer until he was twenty-six years old, and since then has been a Baptist minister. He is pretty well acquainted all over the county. He has known Dr. Newsom for five years. The witness stated that he has never made any statement to Dr. Perry concerning the character of Dr. Newsom. He heard Dr. Perry make a statement about Dr. Newsom perhaps about the beginning of the year. He considers the reputation of Dr. Newsom for truth and veracity as good. The witness stated that Dr. Perry is a relative of the witness by marriage.

CROSS-EXAMINATION BY MR. HOUGH

The witness stated that he had heard Dr. Newsom came to Chicago to testify. The only time he has heard Dr. Newsom's reputation discussed was the time he mentioned. He stated that he had a chum who was bitten by a cat and he took the chum to Columbia to be treated. He did not make a statement to Dr. Perry about Dr. Newsom at that time. He does not remember that he has ever had any conversation with Dr. Trotty about Dr. Newsom or with Dr. Teale. Dr. Heizer saw the witness about coming to Chicago.

The witness stated that he retired from the ministry about two years ago. He was not forced to retire. He did not state to either Mr. Reibers or to Mr. Rivers that he would not believe Dr. Newsom.

TESTIMONY OF MR. T. G. GRIGGS

Mr. T. G. Griggs was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Griggs testified that he lives in Ruby, S. C., where he is engaged in the manufacturing of lumber. He knows practically everyone in Ruby. Dr. Newsom is his family physician and he considers Dr. Newsom's reputation for truth and veracity as good and he would believe him under oath. He once heard Dr. Fundenberg make some statement about Dr. Newsom. Dr. Fundenberg was there before Dr. Newsom came.

CROSS-EXAMINATION BY MR. HOUGH

The witness stated that he thought everyone believed Dr. Newsom. Dr. Fundenberg stated he would not believe Dr. Newsom. The witness stated that he knows of the witnesses who testified for the plaintiff concerning Dr. Newsom but has not talked with them about Dr. Newsom's reputation.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness stated the circumstances under which Dr. Fundenberg had made statements concerning Dr. Newsom's character; namely, Dr. Fundenberg was called in to take care of a confinement during Dr. Newsom's absence, and at the time of his payment Dr. Fundenberg stated that Dr. Newsom was more apt to tell a lie than anything else.

RECROSS-EXAMINATION BY MR. HOUGH

The witness stated that Dr. Fundenberg was the only one he had heard discuss Dr. Newsom's character since the beginning of the trial.

DEPOSITIONS

Mr. Loesch offered to read some depositions relative to Lydia Powell.

TESTIMONY OF REV. A. B. SMITH

Rev. A. B. Smith resumed the stand in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Rev. A. B. Smith stated that he retired from the ministry to rest, and has at present offers from four churches.

COURT RULING ON DR. HAGGARD'S TESTIMONY

The Court ruled that so much of Dr. Haggard's testimony as related to the condition of the woman's womb might be stricken out. After two more depositions were read the jury retired.

Arguments were then made before the Court regarding the introduction of depositions as to the death of Lydia Powell. These depositions were to show that the Lydia Powell mentioned in the article of THE JOURNAL of the American Medical Association was not the Lydia Powell mentioned in the testimonials of the Chattanooga Medicine Co., but that the American Medical Association published in good faith the statement that the Lydia Powell of the Chattanooga Medicine Co. testimonial was dead. The attorneys for the plaintiff admitted that the mistake was an honest mistake.

June 12, 1916, Morning

TESTIMONY OF REV. R. R. BRASHER

The Court met pursuant to adjournment. Rev. R. R. Brasher was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Rev. Brasher testified that he is a minister, residing in Plantersville, Ala., ten miles from Maplesville. He preaches in both places. He has been pastor for more than two and a half years. He has known Dr. W. E. Kay, of Maplesville, over two years and a half. He considers the reputation of Dr. Kay as good and would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

Dr. Kay is not the witness' family physician. The witness has not talked with anyone about Dr. Kay's reputation for truth and veracity before this case. Dr. Kay was formerly Mayor. The witness has never had any dealings with Dr. Kay.

TESTIMONY OF DR. J. J. DUBOIS

Dr. J. J. DuBois was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. J. J. DuBois testified that he has been practicing medicine for twenty years. He resides in Stanton, Ala., which is four miles from Maplesville. He knows most of the people in Maplesville. He is acquainted with Dr. W. E. Kay, whose reputation for truth and veracity he considers good and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he has known Dr. Kay for five years. He knew that Dr. Kay was Mayor and had resigned. He had not heard the grounds for resignation. The witness stated that he has never been convicted for failing to report the births of children or for practicing medicine without a license. The witness is not now under indictment for assault and attempt to murder.

Objection to these questions was made and sustained.

TESTIMONY OF MR. GUY H. GERALD

Mr. Guy H. Gerald was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Gerald testified that he resides in Thorsby, Ala. He lived at Maplesville over four years, up to last July. He was engaged in the fire insurance business, and was cashier and president of a bank, which failed. No litigation is now pending as a result of this failure. The witness is well acquainted around Maplesville. He has known Dr. Kay about four years, and considers his general reputation for truth and veracity as good and would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he had been employed in three other banks. Neither himself nor any of the other officers are being held for any litigation resulting from the failure of the bank. The witness knows Mr. Fred James, who is a negro. He has not talked with Mr. James about the character of Dr. Kay. Mr. Gerald knows Dr. Glover. He has not heard why Dr. Kay resigned as Mayor. He understood that Dr. Kay resigned because he had been bothered so much about litigation in connection with Dr. B. O. Glover. He has never heard Dr. Kay's reputation for truth challenged.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he knows Dr. B. O. Glover and considers his reputation for truth and veracity as bad, and would not believe him under oath.

TESTIMONY OF MR. RALPH CALLOWAY

Mr. Ralph Calloway was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Calloway testified that he is Mayor of Maplesville and has been Mayor since the first of last July. He has resided in Maplesville eighteen years. He succeeded Dr. W. E. Kay, who resigned from the Mayorship. The witness was appointed Mayor by the town council, which consists of five members. He was also postmaster and was sheriff. He is thoroughly acquainted with the people of Maplesville and its vicinity. He considers the general reputation of Dr. Kay as good and he would believe him under oath.

The witness stated that Dr. Kay resigned because his practice required all of his time and he could not put the time in the Mayor's office that he thought it required. The books were audited and found correct. He knows Dr. B. O. Glover, whose reputation for truth and veracity he considers as bad and would not believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that there is more than one political faction in Maplesville. Dr. Glover is on the opposite side. Dr. Kay was elected Mayor.

Mr. Calloway stated that he was appointed postmaster in 1906 and resigned in 1914, following a change in administration. He stated that he resigned the deputy sheriff's office because he was elected Mayor. He could not hold two offices at the same time.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—You say that you know B. O. Glover's reputation for truth and veracity? *A.*—Yes, sir, I think I do.

Q.—Have you ever heard anybody speak of his reputation?

Mr. Walker:—That is objected to.

THE COURT:—Objection sustained.

To which ruling of the Court the defendants, etc., excepted.

Mr. Walker: Q.—Mr. Mayor, don't you know that—a question that has just come to me—that the balance in Kay's bank of the city's funds, was $6.30 and that the shortage was $46.78? *A.*—No, sir, I don't.

TESTIMONY OF J. W. RILEY

Mr. J. W. Riley was called as witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Riley testified that he resides in Cottonwood, Ala., where he owns the Riley Telephone Co. He is well acquainted in the neighborhood of Cottonwood, Ala., and is a member of the County Board of Education which selects the teachers.

The witness is acquainted with Mr. Frank B. Sellers, a teacher whom he has known for nearly six years. He considers the general reputation of Mr. Frank B. Sellers as good and would believe him under oath. He also knows Josh Granger, whose general reputation for truth and veracity he considers good and would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he cannot identify the writing of Mr. Jim Sellers. He has never talked with anyone about the reputation of Mr. Frank B. Sellers. He cannot call to mind the number of people whom he heard say that Mr. Frank B. Sellers would tell the truth.

TESTIMONY OF MR. J. S. WILLIAMS

Mr. J. S. Williams was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Williams testified that he resides about eleven miles from Cottonwood, Ala. He is a farmer. He knows Mr. F. B. Sellers and considers his general reputation for truth and veracity as good. He would believe him under oath. He also knows Josh Granger. He considers Josh Granger's reputation for truth and veracity as good and would believe him under oath. He knows Mr. William Rucker—a farm hand—he considers his general reputation for truth and veracity as bad and he would not believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

Mr. Walker asked the witness if there was any man in the community whom everybody would believe under oath.

Objection was made to this question and sustained.

The witness stated that he has never been indicted for conspiracy in reference to bankruptcy cases. He was once bankrupt. He was never accused of arson. He has never had trouble in collecting insurance. He has had fires on his property. He never has had any personal difficulty with Mr. Rucker or with Mr. Granger. Mr. Rucker owed him several hundred dollars when he left. Mr. Granger used to pay

what he owed. He testified that he had never heard any of the witnesses for the plaintiff speak of the character of Mr. Granger.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Williams stated that he has a daughter named Eunice. Dr. C. A. Glover never attended his daughter, but did fix up some medicine for her on one occasion. The witness testified that his daughter never took any Wine of Cardui that he knows of. He considers the general reputation of Dr. Glover as bad, and would not believe him under oath.

RECROSS-EXAMINATION BY MR. WALKER

Dr. Glover is not in debt to the witness. The witness does not lend money at usurious interest. Dr. Glover did not see the witness' daughter. The witness knows about her case from what Dr. Glover told him. The witness is to receive money for coming to Chicago and his expenses. Dr. Moody spoke to Mr. Williams about coming to Chicago.

TESTIMONY OF MR. N. B. HUGHES

Mr. N. B. Hughes was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Hughes testified that he is a teacher residing in Cottonwood, Ala. He has been a teacher for twenty-five years. He considers the general reputation of Mr. Frank B. Sellers for truth and veracity as good and he would believe him under oath.

He knows Josh Granger, whose reputation he considers as good, and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he never heard the reputation of Mr. Frank B. Sellers questioned before this trial. He knows the father, Mr. Jim Sellers. He does not know his handwriting. Dr. Moody saw the witness about coming to Chicago.

TESTIMONY OF DR. W. E. PAGE

Dr. W. E. Page was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Page testified that he resides in Ashford, Ala., which is about eleven miles from Cottonwood. He knows Mr. Frank B. Sellers, whose general reputation for truth and veracity he considers as good. He knows Mr. Josh Granger, whose general reputation for truth and veracity he also considers good and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he treated a little girl in the Sellers' family about eighteen years ago. He also treated a farm hand more recently. He has never heard anything except favorable talk about Mr. Granger. The witness has not talked with any of the witnesses for the plaintiff about Mr. Sellers' reputation.

Dr. Page stated that he has never made any attack or interested himself in any attack against Dr. Glover since the latter testified in this trial.

An adjournment was taken until 2 o'clock the same day.

June 12, 1916, Afternoon

TESTIMONY OF MR. J. H. BLAKE

The Court met pursuant to adjournment. Mr. J. H. Blake was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. J. H. Blake testified that he resides near Oakdale, Tenn., where he has lived practically all of his life—seventy years. He is a farmer. He is well acquainted in Oakdale. He knows Joe Cooper, whose general reputation for truth and veracity has always been considered good and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness has not talked with any of the witnesses for the plaintiff concerning the character of Mr. Cooper. Dr. Cooper saw the witness about coming to Chicago.

TESTIMONY OF MR. W. A. LANGLEY

Mr. W. A. Langley was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Langley testified that he resides in Oakdale, Tenn., where he is County Tax Assessor. He knows practically everyone in the town. He has known Mr. Joe Cooper for twenty-two years, and he considers his general reputation for truth and veracity as good, and would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that his office as County Tax Assessor is an elective office. Mr. Cooper has always supported him for office. The witness was asked if he did not belong to a party which was called the "Cooper gang or bunch." The witness stated that he never heard of it.

Mr. Langley has not talked with any of the witnesses for the plaintiff about the reputation of Mr. Cooper. Mr. Cooper has not drunk anything for four years.

TESTIMONY OF MR. GRAM DAVIS

Mr. Gram Davis was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Davis testified that he resides in Wardburg, Tenn., which is near Oakdale, Tenn., and was deputy sheriff up to 1912. He knows Joe Cooper, whose general reputation for truth and veracity he considers as good, and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that Mr. Joe Cooper has supported him in election.

TESTIMONY OF MR. ALEXANDER ADAMS

Mr. Alexander Adams was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Adams testified that he has been engaged in the mercantile business in Oakdale for three years. He considers the general reputation of Joe Cooper for truth and veracity as good and would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he told a friend that this was an opportunity for him to come to Chicago to see his mother at somebody else's expense.

DEPOSITIONS

Mr. Loesch then read the depositions of Mr. John W. Bishop, Mr. A. B. Menefee and Moses Elwood McClure, concerning Lydia Powell.

TESTIMONY OF DR. S. P. HOLLAND

Dr. S. P. Holland was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Holland testified that he resides in Columbia, Ala., where he has been practicing medicine. He knows where Cottonwood is, and has lived within seven miles of Cottonwood. He knows Mr. Frank B. Sellers, and considers his general reputation for truth and veracity as good. He would believe Mr. Sellers under oath. He knows Mr. Josh Granger, whose general reputation he considers as good and would believe him under oath.

The witness has not talked with any of the witnesses for the plaintiff concerning the reputation of Mr. Frank B. Sellers. Dr. Moody saw him about coming to Chicago. Dr. Moody asked him if he knew the general reputation of Mr. Granger and Mr. Sellers, and the witness replied that it was good. This was the first time the witness has been asked if he would believe them under oath.

TESTIMONY OF MR. ROBERT CHESHIRE

Mr. Robert Cheshire was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Cheshire testified that his business is running an automobile. He knows Josh Granger, whose general reputation he considers as good and would believe him under oath. He knows Dr. Glover, whose reputation he considers as bad, and he would not believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that Dr. Glover's reputation was bad before the witness had impeached the character of Mr. Sellers and Mr. Granger, and it has become worse since. The witness and Dr. Glover belong to different political factions. Dr. Moody arranged with the witness to come to Chicago.

The further hearing of the case was adjourned until the following day, June 13, 1916, at 10:30 a. m.

June 13, 1916, Morning

TESTIMONY OF MR. C. A. GARDNER

Mr. C. A. Gardner was called as a witness for the defendants in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Gardner is the same witness who was sworn as a character witness for the plaintiff. He desired to change his testimony in the case to say that when he testified that the Goddards were a "bunch of crooks" he did not know that there was more than one Dr. Goddard, and that he had inquired concerning the matter when he came home and he now desired to withdraw his testimony. Dr. Goddard whom he understood was a man of bad character was not Dr. G. M. Goddard, a witness for the defendant.

CROSS-EXAMINATION BY MR. WALKER

The witness admitted what he said at the first time he testified, but stated that he did not know there was more than one Dr. Goddard.

TESTIMONY OF DR. A. B. SMALL

Dr. A. B. Small was called as a witness for the defendants in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Small testified that he has been practicing medicine in Dallas, Texas, for ten years. He knows Dr. G. M. Goddard and considers his general reputation for truth and veracity as good. He would believe Dr. Goddard under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that Dr. G. M. Goddard himself saw him about coming to Chicago. He knew the other Dr. Goddard. There were three of them. The witness has no connection with the sanitarium. Dr. G. M. Goddard has called the witness in consultation. The witness has not discussed the character of Dr. Goddard with any of the witnesses for the plaintiff.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he knew that one of the Goddards was a man of irregular habits.

RECROSS-EXAMINATION BY MR. WALKER

The witness stated that he knew that all three of the Goddards were together in Dallas, Texas.

TESTIMONY OF DR. C. W. SIMPSON

Dr. C. W. Simpson was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Simpson testified that he has resided in Waxahachie, Tex., for twenty-four years. The witness and Dr. Small are on their way to Detroit to attend the Annual Session of the Association. He stated that he is well acquainted in the neighborhood of Waxahachie. He knows Dr. G. M. Goddard and has known him for twenty years. He considers Dr. Goddard's reputation for truth and veracity as good and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that it has reached him that a brother of Dr. G. M. Goddard was not straight. The witness stated that he had not made any arrangements as to expenses for the trip. The witness had not talked with any of the witnesses for the plaintiff concerning the charatcer of Dr. Goddard.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that when he attends the Annual Session of the Association he pays his own expenses.

TESTIMONY OF DR. E. A. MEANS

Dr. E. A. Means was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Means testified that he practices in Dallas, Texas, and has resided in Oak Cliff for twenty-five years. He considers the general reputation of Dr. G. M. Goddard for truth and veracity as good, and he would believe him under oath. The witness knows that there were three Dr. Goddards.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he knows Mr. George Reynolds. He stated that he never told Mr. Reynolds that Dr. G. M. Goddard was a crook. He knows two of the Goddards were crooks. He knows that Dr. G. M. Goddard is honest.

TESTIMONY OF MR. GEORGE W. LEADWELL

Mr. George W. Leadwell was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Leadwell testified that he is a farmer residing in Boyce, Texas, and that he has known Dr. G. M. Goddard for ten or eleven years, and considers his general reputation for truth and veracity as good and would believe him under oath. He is acquainted with Mr. J. W. Pierson, a minister who was formerly in the drug business. He never had any conversation with Mr. Pierson about the reputation of Dr. G. M. Goddard.

CROSS-EXAMINATION BY MR. WALKER

The witness was asked whether he was on his way to the meeting of the American Medical Association; he said he was not. He came to Chicago with Mr. Marx. He expects to receive something for his time, in addition to his railroad expenses.

TESTIMONY OF MR. JOHN T. BOARDERS

Mr. John T. Boarders was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Borders testified that he is a farmer residing in Boyce, Texas. He knows Dr. G. M. Goddard, whose general reputation he believes is good and he would believe him under oath. He knows Mr. Pierson who was formerly a druggist and is now a minister. He never had any conversation with Mr. Pierson about Dr. G. M. Goddard's character. He never heard Dr. G. M. Goddard's character questioned until last week. He came to Chicago with Mr. Marx. He is receiving his expenses.

TESTIMONY OF MR. L. T. BUFORD

Mr. L. T. Buford was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Buford testified that he is a farmer residing in Boyce, Texas. He is acquainted with the general reputation of Dr. G. M. Goddard for truth and veracity, which he considers good, and he would believe him under oath. He knows Mr. J. W. Pierson, but never had any conversation with him regarding Dr. G. M. Goddard.

CROSS-EXAMINATION BY MR. WALKER

The witness stated that he never had any conversation with anyone regarding Dr. G. M. Goddard. The witness came to Chicago with Mr. Marx.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he knew Mr. Marcus G. Noel who runs a drug store at Boyce, Texas. Mr. Noel was working for Mr. McIntosh. The witness himself owned the building.

TESTIMONY OF MR. HARRIS M'INTOSH

Mr. Harris McIntosh was called as a witness for the defendant in surrebuttal.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. McIntosh testified that he has resided in Waxahachie, Texas, for twenty-one years. He knows Dr. G. M. Goddard. He knows Marcus Noel, who was in his employ managing a drug store at Boyce. He considers the general reputation of Dr. G. M. Goddard for truth and veracity as good, and he would believe him under oath.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he has not talked with any of the witnesses for the plaintiff concerning the character of Dr. G. M. Goddard. Mr. Marx made arrangements with the witness to come to Chicago.

Closing

Following this testimony the attorneys for the defendant rested their case. The attorneys for the plaintiff also rested their case. Arrangements were made for the purchase of bottles of Wine of Cardui, so that the jury might drink them.

The Court ruled that attorneys for each side could talk six hours for the presentation of argument.

An adjournment was taken until 2 o'clock the same day.

Following addresses to the jury, the Court read his instructions. The latter were published in THE JOURNAL July 1, 1916, p. 51.

Correspondence

Aromatic Spirits of Ammonia

To the Editor:—In Queries and Minor Notes (THE JOURNAL, July 15, 1916, p. 231) Dr. Horatio C. Wood, Jr., in reference to the administration of aromatic spirits of ammonia, speaks of what was to him a very amusing incident, and belittles the "country doctor" who administered the drug as a stimulant in shock. Dr. Wood's article insinuates that the "country doctor" was ignorant of the action or rather the inactivity of the drug in question. Perhaps so; but I am at a loss to see how and where he was at fault, for the literature, "authentic literature," is teeming with references to, and recommendations of, aromatic spirits of ammonia as a diffusible stimulant.

In Forchheimer's "Therapeusis of Internal Diseases" (Billings), recommended and commended by many leaders of the profession, the following recommendations of aromatic spirits of ammonia are made:

In combination with other drugs as a diffusible stimulant to sustain "heart force" during short periods in lobar pneumonia.

As a cardiac stimulant in strophanthus poisoning, and as a cardiac stimulant in edema of the glottis.

Dr. De Lee recommends it as a stimulant in fainting following postpartum hemorrhage.

Bethea refers to it as a stimulant, useful in syncope, asphyxia, collapse, and poisoning from narcotics and depressant agents.

Musser and Kelly's "Practical Treatment" recommends it in acute fatigue, claiming that it is as effective as strychnin or atropin.

Dr. Edward Otis, the same work, recommends it as a stimulant in dyspnea of advanced tuberculosis, and again in threatened collapse from excessive loss of blood in hemoptysis of pulmonary tuberculosis.

Dr. Alfred Stengel recommends it as a stimulant in influenza.

Dr. Hare recommends it as a rapidly acting diffusible stimulant, surpassing all others.

Dr. James Anders, in his article on pancreatic hemorrhage, refers to it as a stimulant.

Dr. James Tally refers to it as a diffusible stimulant in congestion of the lungs, and recommends it as such.

These references are picked at random, and no doubt scores of other authors recommend aromatic spirits of ammonia as a stimulant.

I myself have never administered a dose of aromatic spirits of ammonia, so that I take no offense at Dr. Wood's reference to the physician who administered it in a case of shock. But if aromatic spirits of ammonia is useless as a stimulant, then who is to blame for its administration by the members of the profession? Is it the country doctor or the "men higher up," those who are supposed to be peers of the profession, who write and edit works which the medical journals recommend to the profession? I refer here to aromatic spirits of ammonia; but it is only one of a hundred drugs and remedies that are recommended by the leading physicians of the country as being something which they are not and as possessing therapeutic virtues which they do not possess.

Is it the country doctor to whom Dr. Wood refers who is to blame? No, it is not. It is the authors, first, of the leading medical works, and secondly of the medical journals in recommending these works to the profession without taking the trouble to point out their fallacies.

Whom, then, is the busy practitioner to believe? He has no time for scientific experiments. He wants facts, and for these he depends on the medical journals and literature to which he subscribes. If the statements of these are fallacious, he is not to blame. Is he to accept the findings of the laboratory workers who claim that a drug possesses no therapeutic virtues, or is he to accept the word of the clinicians who assert that practically the drug possesses therapeutic virtues that the laboratory technician says it cannot and does not possess? ROLAND F. HOTARD, M.D., Winter Park, Fla.

[Dr. Hotard's letter was referred to Dr. Wood, who says:]

To the Editor:—I had no intention of casting any slur at the "country doctor," for I know from personal experience something of the problems he has to meet and how conscientious he is in meeting them. The array of authority which Dr. Hotard quotes, I am sorry to say, does not surprise me. If Dr. Hotard will read my paper on "Pharmacologic Superstitions" (THE JOURNAL, April 8, 1916, p. 1067), he will see that I comment on the fact that men of authority in medical circles lend their commendation to therapeutic measures which cannot be defended on either scientific or clinical grounds.

The medical profession as a whole—including both the city doctor and the country doctor—are not to be blamed for the leaders they have chosen to follow, but for the unreasoning blindness with which they follow those leaders. I do not believe that we should accept the dictum of any one, however eminent, as final proof of the efficacy of a therapeutic measure, but that each should prove the truth for himself. In the paper referred to above I have laid down at some length the criteria by which, in my opinion, the value of any remedial agent can be judged.

HORATIO C. WOOD, JR., M.D., Philadelphia.

Observations on the Coagulation Test for Syphilis as Devised by Hirschfeld and Klinger

To the Editor:—Cole and Chiu (*Arch. Int. Med.*, November, 1915, p. 880) made a report on some 600 serums and spinal fluids successfully examined in this laboratory by the coagulation test. These tests were all made in the late spring of 1915. At irregular intervals during the summer of 1915 and up to autumn of that year the coagulation test was successfully used in conjunction with the Wassermann reaction. Then it was noted that twice the amount of calcium chlorid was required for preparation of serozyme that had been used previously. The reaction then began to be very questionable in its results and remained so until late this spring. Since then, it has once more become quite trust-

worthy, and late in June sixty serums were examined consecutively and with uniform success.

We were at first at a loss to explain this discrepancy, as well as the marked failure of many other American workers with the test. In addition to the work of Hirschfeld and Klinger (*Ztschr. f. Immunitätsforsch.*, 1915, xxiv, 199), Brandt, in Munich (*Deutsch. med. Wchnschr.*, 1915, xli, 1905), has lately reported 500 successful tests, and it has been suggested by Prof. G. N. Stewart that the variable success with the test might be explained by the difference in diet of the sheep during the different seasons of the year and consequent changes in the calcium content of their blood or perhaps changes in some other constituents or properties of the blood. The spring of 1915, during which good results were obtained by Chiu and Cole, was an early spring so that sheep were eating green grass in April and May, whereas this year the season has been later and results were found to be untrustworthy until June.

Further investigations are planned in an effort to explain this presumably seasonal variation in the success of the test as well as to elucidate certain other related problems.

P. G. ALBRECHT, A.M.,
STANLEY P. REIMAN, M.D.,
Cleveland.

The Departments of Dermatology and Syphilis and of Pathology of the Western Reserve University and of the Lakeside Hospital.

Book Plates of Physicians

To the Editor:—For several years I have collected book plates, more particularly plates owned by physicians, also the book plates of medical libraries, medical schools, hospitals, etc., and it has been suggested to me that a check list of these ex libris would be of interest. I cannot flatter myself that I possess specimens of all book plates owned by physicians, by medical libraries, etc., in the United States, and therefore take the liberty of asking, through the columns of THE JOURNAL, that physicians who own such marks of ownership for their books favor me with specimens, also informing me of the names of artists (designers, etchers and engravers).

H. J. ACHARD, M.D., 4513 Dover Street,
Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HYDROMETRA

To the Editor:—1. Can you furnish me with any data relative to hydrometra?

2. How many cases have been reported in THE JOURNAL?

H. H. WILSON, M.D., Salina, Kan.

ANSWER.—1. Hydrometra (a collection of watery fluid in the uterus) is an uncommon condition, probably caused by some form of atresia of the cervical canal. It occurs most frequently after the climacteric period. The symptoms depend largely on the age of the patient. There may be a sense of weight and fulness in the pelvis accompanied by more or less backache. Phillips, in the *Journal of Obstetrics and Gynecology of the British Empire*, October-December, 1914, describes a case in a woman, aged 54, who had been married thirty years and never had been pregnant. Menstruation was painful and consisted of a thin, slimy discharge lasting two days every two or three weeks. The patient had noticed abdominal swelling for two years. She was operated on and a tumor about the size and shape of a seven-months pregnant uterus was removed measuring 20 cm. (8 inches) by 18 cm. (7½ inches) by 16 cm. (6⅔ inches) after hardening. It contained several pints of thin, yellowish fluid. The condition was caused, the author believes, by atresia of the cervical canal which was most probably congenital.

2. There have been no cases reported in THE JOURNAL during the last five years.

AMBRINE

To the Editor:—Can you obtain the formula for the wax, paraffin and resin mixture referred to in an article entitled "War Letters of an American Woman," which occurs in the current issue of the *Outlook* (Aug. 2, 1916)? This mixture is used in the treatment of burns by Dr. Barthe de Sandfort, Hôpital St. Nicholas, Issy-les-Moulineaux, près Paris. Please do not print my name in THE JOURNAL.

H. V. H., Las Animas, Colo.

To the Editor:—Please give the formula of the preparation of wax, paraffin and resin which Dr. Barthe de Sandfort (Hôpital, St. Nicholas, Issy-les-Moulineaux, près Paris), is said to be using so successfully in cases of burns and frost-bite.

INQUIRER, Cleveland.

ANSWER.—The preparation referred to in the letter to the *Outlook*—Ambrine—is a proprietary preparation which has been on the French market for many years. It is a secret nostrum, the proportions of the several ingredients—"wax, paraffin and resin"—not being given. As a matter of fact, there is nothing original in an application of melted resin, beeswax and paraffin, although the correspondent of the *Outlook* seems to have been carried away with the idea that it is one of the great miracles of the day. There are, and have been for many years, a number of similar combinations on the market. Ceratum Resinae—Rosin Cerate (Basilicon Ointment) of the United States Pharmacopeia is a mixture of 50 parts of lard, 15 parts of yellow wax and 35 parts of rosin. This is a very old combination. The resin ointment of the British Pharmacopeia is composed of 26 parts each of resin, beeswax and olive oil and 22 parts of lard. Another British paraffin cerate is composed of 2 parts of beeswax and 15 parts of paraffin. It is quite probable that the preparation is not being used in the way indicated in the letter in the *Outlook*. If it is used in any hospital, it is probably in some isolated instance. The application of such an air-tight dressing in the treatment of wounds that are extremely likely to be more or less infected is a rather questionable procedure. See also Current Comment, Miracles in the War Zone, THE JOURNAL, this issue, p. 516.

SODIUM SULPHATE AS AN ANTIDOTE FOR PHENOL (CARBOLIC ACID) POISONING

To the Editor:—What is the best antidote for carbolic acid poisoning? I noticed THE JOURNAL states that alcohol and glycerin are of no value. Is sodium phosphate or sodium sulphate useful, and if so, what dose should be given?

J. W., M.D., Jewell, Kan.

ANSWER.—Sodium sulphate in strong solution is one of the best known antidotes for phenol poisoning. Lavage of the stomach should be practiced with large quantities of a solution of sodium sulphate, 4 drams to a pint. Alcohol, when used internally after phenol, probably increases the toxicity of the latter, as the alcohol renders the phenol more soluble and increases its absorption. The same is true of glycerin.

At one time it was believed that the action of sodium sulphate was a chemical one. For instance, Holland (Medical Chemistry and Toxicology, 1915, p. 460) states that sodium sulphate forms (with phenol) a relatively harmless sodium phenol-sulphonate, while Cushny (Pharmacology and Therapeutics, 1914, p. 136), commenting on sodium sulphate as an antidote to phenol, states that this is of little value because the phenol does not combine with sulphates as such in the body but with organic sulphur compounds which are only in the process of being oxidized to sulphuric acid. It has been suggested that whatever action sodium sulphate may have as an antidote to phenol may be due to some hindrance to absorption and possibly also to an added purgation.

SOLUTIONS OF THORIUM SALTS FOR PYELOGRAPHY

To the Editor:—1. Please give the salt of thorium which is used in pyelography.

2. In what percentage is the solution used?

Please omit name.

A. B. C.

ANSWER.—1. A neutral solution of thorium nitrate and sodium citrate is recommended by J. E. Burns (Thorium—A New Agent for Pyelography, THE JOURNAL, June 26, 1915, p. 2126). It is claimed to be nontoxic, nonirritating and quite fluid, and it presents the greatest possible degree of obscurity to the Roentgen ray.

2. Burns' formula is as follows:

To make 100 c.c. of a 10 per cent. solution, 10 gm. of thorium nitrate are dissolved in as little distilled water as possible; to this solution, kept hot on a water or steam bath, are added 30 c.c. of a 50 per cent. solution of sodium citrate, the additions being made in small quantities and care being taken to shake the solution thoroughly after each addition. At first after the addition of the citrate solution, a white gummy precipitate is formed which later becomes granular,

and finally dissolves on the addition of all the citrate solution. This solution is then made neutral to litmus by the careful addition of a normal solution of sodium hydroxid, and made up to the required volume of 100 c.c with distilled water. On filtration, a clear, limpid solution is obtained, which, when sterilized, either by boiling or steam under pressure, is ready for use. The stability of the solution is not affected in the least by sterilization.

S. R. Woodruff (The Technique of Pyelography, *Surg., Gynec. and Obst.*, 1916, xxii, 241) colors this solution with methylene blue. This makes it more easily seen through the cystoscope. He states that without color it is impossible to tell when the thorium citrate solution has filled the pelvis of the kidney and is being discharged down the ureter alongside the catheter.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Missouri: Kansas City, Sept. 18-20. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New York: Albany, Buffalo, New York and Syracuse, Sept., 19-22. Mr. Harlan H. Horner, Chief Examinations Division, The University of the State of New York, State Department of Education, Albany.

California April Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at Los Angeles, April 3-7, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 30, of whom 26 passed, including 9 osteopaths, and 5 failed, including 3 osteopaths. Thirty-six candidates were licensed through reciprocity. Seven candidates were granted osteopathic reciprocity licenses. Twenty-eight candidates, including 19 chiropractors, were granted drugless practitioner's license. Fifteen chiropractors were licensed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
California Eclectic Medical College	(1915)	79.9
College of Phys. and Surgs., Los Angeles	(1914) 75; (1915) 81,	93.2
Leland Stanford Junior University	(1914)	92.7
University of California	(1915)	88.4
Howard University	(1914)	85.7
Bennett Medical College	(1915)	75
Hahnemann Med. Coll. and Hosp., Chicago	(1914)	84.4
Rush Medical College	(1914) 92.5; (1915)	89.5
University of Illinois	1913)	85.1
Harvard University	(1915)	85.9
University of Michigan Homeo. Med. School	(1915)	87.5
St. Louis University	(1915)	89
McGill University	(1915)	97.7
University of Toronto	(1870)	82.8

FAILED

California Eclectic Medical College	(1915)	65.2
Imperial University, Kyoto	(1910)	67.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Denver and Gross College of Medicine	(1906)	Wyoming
American Medical Missionary College, Chicago	(1907)	Illinois
College of Physicians and Surgeons, Chicago	(1897)	Michigan
Hering Medical College	(1899)	Illinois
Northwestern University Woman's Medical School	(1895)	Illinois
Quincy College of Medicine	(1887)	Illinois
Rush Medical College	(1906)	Illinois
Drake University	(1907	Iowa
State University of Iowa, College of Medicine	(1898)	Iowa
Medical College of Indiana	(1901)	Indiana
Indiana University	(1909)	Indiana
Kansas Medical College	(1905)	Kansas
University of Louisville	(1911)	Kentucky
Baltimore Medical College	(1897)	R. Island
	(1899)	W. Virginia
Tufts College Medical School	(1908)	Mass.
Kansas City Medical College	(1904)	Kansas
Missouri Medical College	(1872) Missouri; (1891)	Illinois
St. Louis University	(1905) Washington; (1913)	Missouri
University Medical College	(1911)	Missouri
John A. Creighton Medical College	(1914)	Nebraska
Dartmouth Medical School	(1885)	New Hamp.
New York Homeopathic Medical College	(1880)	New Jersey
Cleveland Coll. of Phys. and Surgs.	(1898) (1909) (1910)	Ohio
Starling-Ohio Medical College	(1913)	Ohio
University of Oregon	(1905)	Washington
Hahnemann Med. Coll. and Hosp., Philadelphia	(1895)	Mass.
Jefferson Medical College	(1886) Pennsylvania; (1894)	Missouri
Medico-Chirurgical College of Philadelphia	(1896)	Penna.
Western Pennsylvania Medical College	(1903)	Penna.
National University of Athens	(1900)	Illinois

Miscellany

The County Health Officers—How Walker County, Ala., Solves the Public Health Problem

No standard plan of public health administration has yet been developed. It is interesting to see how one Southern county has solved its problems. A few years ago the medical profession of Walker County, Ala., decided to work for the establishment of an adequate public health service (Grote, Carl A.: A Two Years' Public Health Campaign in a Rural County, *South. Med. Jour.*, April, 1916, p. 320). The result was the appropriation by the county commissioners of $3,000 for the purpose in 1914, and the employment of a whole-time county health officer. A physician from outside the county, free from political, professional and personal entanglements, was chosen for the position. The county health officer was made medical inspector of the 125 schools, and city health officer also of the seven incorporated towns within the county. In each town a local physician agreed to act as assistant city health officer, a plan which is said to work well, though Dr. Grote, who describes it, believes that better results would be secured if the assistant city health officers received small salaries. It was recognized from the first that the activities of the department must be largely educational, directed toward securing the cooperation of the community. Every effort was made to secure complete vital, mortality and morbidity statistics. It was regarded as essential that complete statistics be secured during the first year, in order that preventive work done thereafter might receive the credit belonging to it. A birth rate of 32.3 per thousand of population and a death rate of 11 per thousand have been established, and cases of the more serious diseases are said to have been reported promptly and accurately. As medical inspector of schools, the county health officer examines and grades the sanitary condition of the school buildings, and makes a physical examination of the children attending. The decreasing rate of physical defects found at later examinations encourages the belief that this inspection has had a salutary effect. Clean-up campaigns have been inaugurated in the towns; the U. S. Public Health Service reports that "the towns in Walker County are advanced examples of town sanitation." The corporations operating mining and industrial camps within the county have been induced to make large outlays in the sanitation of these camps. A health exhibit, which has many visitors, has been installed in the county court house. Whenever a birth certificate is sent in, the mother of the baby receives a bulletin on its care. Lectures, newspaper articles, health bulletins and personal home visits have spread the gospel of disease prevention. The U. S. Public Health Service and the Alabama State Health Department have cooperated in making a sanitary survey of Walker County. While much remains to be done, the permanence of the work is said to be assured, and this in itself is gratifying testimony as to what can be accomplished by and for a rural county that contains earnest and enlightened public health workers. Dr. Grote credits the medical profession of Walker County with being "the backbone of all our activities."

The Bacterial Content of Sausages

Sausages are a popular article of diet, notwithstanding the more or less common idea that they may contain anything from good pork or beef to dog or cat meat, and the real danger that insanitary methods of preparation may affect their fitness for human food. Some investigation of sausages has been made in Germany, where the subject is rendered of special importance by the common practices of eating sausages raw and of making them of liver, spleen and other viscera which are particularly likely to contain pathogenic bacteria. In France and England also, some studies have been made on the subject. Yet, in this country at least, they seem to have received little attention from the student of foods. Three classes of dangers from sausage poisoning

have been recognized: (1) from the ordinary bacteria of decomposition (generally not severe); (2) from members of the *enteritidis* group (a real source of danger), and (3) from the toxins of *Bacillus botulinus* (seldom encountered except in Germany).

Recently, William E. Carey of the Department of Hygiene and Bacteriology, University of Chicago, has examined thirty-four samples of pork sausage bought in meat markets, some sanitary, others highly insanitary, in various parts of Chicago (The Bactericidal Examination of Sausages and Its Sanitary Significance, *Am. Jour. Pub. Health*, February, 1916, p. 124). The purpose was to determine: (1) the number of bacteria present per gram of meat; (2) the prevalence of fecal or pathogenic organisms; (3) the presence of adulterants; (4) the prevalence of the use of preservatives; (5) the influence of sanitary marketing on the bacterial content, and (6) the effect of cooking on the bacterial flora. An effort was made also to determine (7) the influence of the sausage casings on the bacterial count.

1. The number of bacteria found varied from 1,538,400 to 2,500 at 37 C. (98.6 F.) for twenty-four hours. In view of the number of factors which may influence it, Carey attaches little importance to the bacterial count.

2. The *Bacillus coli* was found in thirty of the thirty-four samples; other intestinal organisms were present in a number of cases, possibly indicating careless and insanitary methods of manufacture. *Proteus vulgaris* was present in one third of the samples. This may indicate the use of old meats in which decomposition has begun, but, in Carey's opinion, should not be given too much importance in the absence of control tests on meats known to be fresh. Organisms biologically related to but not identical with the *enteritidis* group were found in 25 per cent. of the samples.

3. Starch was present as an adulterant in nineteen of the thirty-four samples, the percentage varying from 2 to 12 per cent. Of the twenty-one samples from shops in the better residence districts, nine, or 38 per cent., contained starch; of the thirteen samples from poorer districts, starch was present in ten, or 77 per cent. The samples from the poorer districts also contained the larger percentages of starch.

4. Sulphites were found in seven out of the thirteen samples from the poorer shops, and in three out of a series of fifteen samples obtained from the better-grade shops.

5. Curiously enough, the bacterial counts ran no higher in samples from the insanitary shops on the west side than in those from shops above the average in respect to sanitation; in fact, the average bacterial count for the latter group was lower. This, of course, does not indicate that insanitary shop conditions are of no importance, but merely that a great many other factors enter into the hygiene of sausages. The low bacterial count in the poorer shops may have been due to the use of sulphites, yet an increase in the number of bacteria does not seem to be correlated with absence of sulphites.

6. Cooking was found to destroy a large percentage of the bacteria present. Thoroughly cooked sausage was sterile.

7. While in five out of seven samples the bacterial count of scrapings from the casings was greater (at 37 C. and at twenty-four hours) than that from the interior of the sausage, Carey believes that the use of properly prepared skins can not be considered to increase the bacterial count or the danger from pathogenic bacteria.

These results, even though they disclose no startling dangers in sausages, indicate that sanitary handling and careful cooking are of importance.

Ambard's Formula for Determination of Renal Function

An interesting study of Ambard's laws with instances of their application in the clinic is published by F. Leza in the *Revista de Medicina y Cirugia de la Havana* of recent date, p. 253. (Ambard's laws were described in THE JOURNAL, Feb. 5, 1916, p. 416.) He regards the Ambard formula as the most rational method for exploring the functional capacity of the kidneys, and expatiates on the fact that when the prostate is causing trouble, the kidneys are usually pathologic. This is the explanation for many of the disasters after operating on the prostate, and hence prostatectomy is not advisable when the Ambard coefficient is above 0.150. He mentions that chloroform raises the coefficient, showing that it locks up the kidneys, while ether renders them more permeable at first. The original Ambard formula has been simplified by Balavoine and Onfray, who compare the output of urea during a given interval with the kilograms of body weight. Leza regards this modification as an improvement, representing better the actual functioning of the organism. In his tabulated fourteen cases, mostly patients with hypertrophied prostate, all recovered after operative treatment when the coefficient had been below 0.092, while none survived with coefficient of 0.105 or over, with one exception, in which the figure had been 0.127, but dropped to 0.092 after the operation.

Book Notices

THE ENDEMIC DISEASES OF THE SOUTHERN STATES. By William H. Deaderick, M.D., and Loyd Thompson, M.D. Cloth. Price, $5. Pp. 546, with 117 illustrations. Philadelphia: W. B. Saunders Company, 1916.

As the title indicates, the authors consider those diseases which occur particularly in the southern United States: malaria, blackwater fever, pellagra, amebic dysentery, hookworm disease, and diseases due to other intestinal parasites. The discussion of each disease includes a historical introduction and sections devoted to etiology, pathology, clinical history, diagnosis, prognosis, prophylaxis and treatment. The authors have not limited themselves wholly to the question as it concerns the Southern States, but discuss the occurrence of the diseases elsewhere and their effects on other races. The book is well illustrated, and the technic involved in various laboratory examinations associated with these diseases is given in detail. The article on the treatment of malaria is exceptionally sane, the authors pointing out that the chief reliance should be placed on quinin, and mentioning the use of salvarsan in certain quinin-fast cases. In the discussion of pellagra the authors take up the various causative theories and state the arguments for and against each of the theories without taking a definite stand in behalf of any one. As the treatments of pellagra are as varied as the theories of etiology, a general treatment based on all of them is outlined, but suggested special treatments are also adequately desired. The authors append to the work a list of 547 references to the subjects discussed, covering modern articles in all languages. For the diseases included in it the book is a modern, rational, scientific reference work.

THE ART OF ANESTHESIA. By Paluel J. Flagg, M.D., Lecturer in Anesthesia, Fordham University Medical School. Cloth. Price, $3.50 net. Pp. 341, with 136 illustrations. Philadelphia: J. B. Lippincott Company, 1916.

This strikes one at once as having been written by one who knows the subject from a practical standpoint. The chapters on methods of administration of the various anesthetic agents are full of hints to beginners; they are valuable because practical. The chapter on signs of anesthesia will afford students of the subject much of value in the physiology of anesthesia. The illustrations, especially those of posture favoring respiration and those illustrating means of resuscitation, are excellent. Chapter IV covers the various methods of ether administration, thoroughly giving the special advantages of each method as well as its disadvantages. Short chapters on ethyl chlorid and chloroform are given space, apparently rather apologetically, for both are gradually passing into the background of disuse. Under the subject of nitrous oxid gas and oxygen too much space is given to illustrating various forms of apparatus to the exclusion of methods of administration, signs and symptoms, dangers, etc., which the author covers so well in his chapter on ether. The book is a valuable contribution to the art of anesthesia, and in its originality of thought is quite distinct from those works which appear to be a collection of monographs which the reader has read previously.

Medicolegal

No Injunction Against Commenting on Medicine, Testimonials and Business

(Willis vs. O'Connell (U. S.), 231 Fed. R. 1004)

The United States District Court, at Mobile, Ala., holds that it must deny the injunction the plaintiff asked for to restrain the defendant from publishing in his newspaper (the Mobile *Tribune*) comments and criticisms reflecting on the plaintiff, on a proprietary medicine ("Tan-lac") and the business of the plaintiff in selling the same, on the testimonials commending the efficacy of the medicine, and on the authors of such testimonials. The court says that the plaintiff had the exclusive distributing agency in Alabama and five other Southern states of the company engaged in the manufacture of Tan-lac, the sale of which in these states had aggregated 500,000 bottles during the preceding twelve months. Reference was made in one of the published articles made exhibits to the bill to excerpts from THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION which had been previously published, exposing Tan-lac. However, a court of chancery will not grant an injunction to restrain a libel, but for the protection or vindication of his good name leaves the citizen to his remedy at law—to a civil action, or criminal prosecution, or both. Nor was the plaintiff's case helped by the averment that the articles published and to be published were and would be libelous, defamatory and scurrilous articles regarding Tan-lac and those who have given testimonials regarding its curative powers, and that the purpose and intent of the defendant in the publication of such articles was, and would be, to hold Tan-lac and the plaintiff and those who have endorsed Tan-lac and testified to its beneficial effects up to ridicule, contempt and public scorn and derision for the sole purpose of injuring the sale of said medicine, and that it would make it difficult if not impossible to secure further testimonials, to the great injury of the property rights of the plaintiff. Neither did the averment that the defendant was financially unable to respond in damages add any force to the plaintiff's case. The court thinks that perhaps it may be justified in taking a further view of this case, that is to say, among other things: Has not the defendant the right to question the efficacy of the plaintiff's remedy—to expose it as a nostrum, if it be a nostrum? May not a newspaper publisher expose, if he can, the plaintiff's medicine—if it be a quack medicine? May he not in good faith tell the public of the dishonesty and fraud practiced on the public? Is there anything so sacred about proprietary medicines, or those who cooperate in a plan to further their sales and increase the profits of the vendor, that a newspaper man shall be required to cease publishing what he believes to be the truth, or cease to attack the business methods of medicine vendors, when and where he believes the cooperating testimonials, in furtherance of the scheme to sell such medicine, are sinister and not founded in truth? The court thinks he may do so, but within the limits of the law which prescribes penalities, civil and criminal, for libelous publications. Again, why may not any man publish his warning to his fellow sufferers not to use what he honestly believes to be a nostrum, but rather, on the other hand, to take the advice of a competent physician and his medicine also, if any be prescribed? The allegation of the plaintiff that some medicinal compounds are sometimes prescribed by physicians cannot aid the plaintiff in his application for an injunction. It may be conceded that such practice is sometimes followed, but it must not be forgotten that in such cases it is followed, not without the benefit of the learning and discriminating judgment of the man specially taught and skilled in diagnostics and well informed as to the therapeutic value of drugs, and their use or harm when rightly or wrongly compounded or administered in proper or improper cases. Every wise layman ought to know that the physician uses his learning, experience and judgment in prescribing any medicine, simple or compounded. Why may not the newspaper man advise people to consult a physician rather than take a widely advertised remedy, or why may he not suggest that a man afflicted with an exceeding great thirst ought to confine himself, preferably, to the use of water, milk and grape juice, or take a "high-ball," or a "whisky straight," or a compound made by himself of "corn," "bourbon" or "rye" and water and sugar, rather than drink a mixture of aloes, glycerin, licorice and gentian, advertised and sold for whatsoever purpose under whatsoever name? The court has reached the conclusion that the motion to dismiss the plaintiff's bill for a want of equity must be granted.

Evidence Sufficient to Support Verdict for Physician

(Bolar vs. Browning (Ky.), 181 S. W. R. 1109)

The Court of Appeals of Kentucky, in affirming a judgment in favor of the defendant, who was sued for alleged malpractice, says that counsel for the plaintiff devoted most of his brief to an attempt to show that the verdict for the defendant was flagrantly against, and not supported by, the evidence. But the court thinks he overlooked the fact that the real issue was not the extent or permanency of his client's injury, but was whether or not the alleged dislocation was present when the defendant treated the case, and whether or not the defendant exercised skill and care in making his diagnosis. The plaintiff's testimony tended to prove that his shoulder was dislocated at the time the defendant gave him treatment, but the defendant testified positively that such was not the case. The defendant's testimony was that he saw the plaintiff but twice, the first time on the day his shoulder was injured, and again the next morning; that he was called to the plaintiff's house to see his children, who had the measles, and that he saw the plaintiff only incidentally, but that he made a thorough examination and applied a proper test to ascertain whether or not the shoulder was dislocated; that he felt sure it was not, but told the plaintiff that if his arm did not get along all right to let him know. The plaintiff admitted that the defendant saw him only twice, but claimed that the first occasion was the day he was hurt, and that the next occasion was about three weeks thereafter. He said that the defendant was called especially to see him, and that his treatment of the children for measles was merely incidental to the visit to him. He did not deny that the defendant told him to let him know if he did not get along all right, but said that, if he did tell him, that he did not remember it; but he admitted that, although living within a few miles of the defendant's residence, he never again had the defendant to see his arm, and that on the few occasions when he did see the defendant he did not mention to him that there was any trouble with his arm. One occasion when he did see the defendant and did not mention any trouble with his arm was about six months after he claimed the injury occurred, an occasion when the defendant was attending his wife in childbirth. The verdict of the jury in favor of the defendant in the light of this testimony could not be said to be unsupported by the evidence, or so flagrantly and palpably against the evidence as to appear to have been given under the influence of passion and prejudice. A physician who made a Roentgen-ray examination of the condition of the arm about a year and a half after treatment was rendered by the defendant, but who stated that he had not made, and did not have, a picture from the plate made by him in the examination, could describe the condition of the arm at that time as revealed to him by the examination, because there was no Roentgen-ray picture in existence, and the evidence was therefore not objectionable on the ground that the roentgenogram would have been the best evidence of the condition of the arm at that time. Moreover, under Section 315 of the Civil Code, requiring for a continuance on account of the absence of evidence an affidavit showing its materiality and due diligence to obtain it, etc., in the absence of such an affidavit it was no error to refuse a continuance because the physician did not make or produce the Roentgen-ray picture as the plaintiff alleged he expected him to do. The provisions of Section 315 are also applicable to such evidence as this, and, not having complied with, the plaintiff was not entitled to a continuance.

Society Proceedings

COMING MEETINGS

Colorado State Medical Society, Glenwood Springs, Sept. 5-7.
Michigan State Medical Society, Houghton, Aug. 15-17.
Oregon State Medical Association, Portland, Sept. 9-10.
Utah State Medical Association, Salt Lake City, Sept. 12-13.

AMERICAN ASSOCIATION OF ANESTHETISTS

Fourth Annual Meeting, held in Detroit, June 12, 1916

(Concluded from page 467)

Team Work

DR. CHARLES W. MOOTS, Toledo, Ohio: Dr. E. J. McKesson and I have been trying to devise some method that would make the results of anesthesia less serious. With this end in view, we have been studying the use of gas, and have arrived at the following conclusions: Nitrous oxid-oxygen is an anesthetic that is extremely dangerous in unskilled hands, but one that is by far the safest of any in skilled hands. It produces anesthesia without injuring the body cells. It may be used in all abdominal operations, especially in cases requiring great length of time. Preliminary treatment is of the utmost importance, and should not consist of atropin. This method favors the production of the best psychologic condition of the patient, and predisposes to a higher percentage of cures. It favors the gradual production of anesthesia which is to be desired. While the degree of M.D. carries with it the legal right to administer anesthetics, there is a certain special training that is needed to give the moral right. The surgeon should feel that he is dealing with a living organism, and not with a mechanical device, and should remember that rough treatment may kill the patient.

DISCUSSION

DR. WALTER M. BOOTHBY, Boston: At our hospital, the recovery room was at one time quite cold and drafty, and there was a series of four or five pneumonias following operation. We had had some cases of this kind before that, but I had not had any in the cases in which I administered the anesthetic. The staff attributed this to the kind of anesthesia I was using, but it was not. The pneumonia was due to the exposure of the patient after the operation. Since then, by keeping the recovery room warm and being sure that the patient was well covered up before being taken back to the ward, we have succeeded in improving matters so much that we have had but one case of ether pneumonia this year.

DR. C. C. MCLEAN, Dayton, Ohio: If this paper had been presented to the surgeons, instead of the anesthetists, we probably should have reaped a greater reward. In giving nitrous oxid as an anesthetic, it is difficult if the operator is continually disturbing the intestines and yet that is what we often see; thus the surgeons will condemn the best method of anesthesia known. I should like to know what percentage of vomiting there was in the cases of Dr. Moots.

DR. G. W. KENNEDY, Sharon, Pa.: The time is not so long since the anesthetist bore the same relative importance to the surgeon that the printer's devil bears to the editor of the paper. We find now, however, that people are beginning to ask, "Who is going to anesthetize me?" as well as, "Who is going to operate on me?"

DR. CHARLES W. MOOTS, Toledo, Ohio: The question is how to reach the surgeon. I believe that the men who have had a broad training are going to get into the spirit of not having a method which they feel bound to defend, but that they will be open to suggestions coming from meetings like this. With regard to vomiting, our cases during the last year ran less than 4 per cent.; and of that percentage, the majority had only slight vomiting on the table, and none afterward.

Alcoholism and Drug Addiction as Complicating Factors in Anesthesia

DR. F. H. MCMECHAN, Cincinnati: The alcoholic patient or the drug addict coming to operation must be accepted as such. The greatest peril lies in not knowing whether either complication exists. In either condition, it is pernicious to attempt a so-called cure just preceding operation or during convalescence. The dangers of alcoholism as a complicating factor of anesthesia are dosage; imperiling or low-grade, continuous cyanosis; exaggerated blood pressure, due to asphyxia, and resulting in abrupt cardiac arrest. To avoid these, I use a chloroform-ether mixture administered by the open drop method, with concomitant administration of oxygen. Anesthesia is induced with ethyl chlorid. The drug addict presents almost the same difficulties as the alcoholic, so far as the administrative technic is concerned, especially when a proper amount of morphin has not been given. With the drug addict in his usual state of saturation, however, the dangers of anesthesia are overdosage, due to delayed elimination, and deoxygenation, resulting in acidosis. The elimination of the anesthetic by the rebreathing method of Gatch is essential.

DISCUSSION

DR. E. J. MCKESSON, Toledo, Ohio: The trouble is that we do not know when we have an alcoholic. Therefore, it has been my practice, in the last two or three years, to divide the preliminary dose into two parts, giving one part two hours before the operation. By starting the preliminary medication long enough beforehand to show the effect of the first dose, you will discover a great many patients who are addicted to the use of morphin or opium in any of its forms.

DR. CHARLES K. TETER, Cleveland: The patients should have the usual dose of the drug they are addicted to on the day of the operation.

DR. C. C. MCLEAN, Dayton, Ohio: I wonder whether any of you have had any experience with a person who has been in the habit of using ether and chloroform. I had, a few weeks ago, when I was asked to give the anesthetic in a case in which they had failed to etherize the patient the day before. I did this, and the only result was an exaggerated excitement stage. I got the patient anesthetized, but not enough to show, on the removal of the mask, that we could insert the gag and go ahead with the operation. We had to stop. The patient was a drug clerk, who had been in the habit of inhaling chloroform and ether.

DR. F. W. NAGEL, Montreal: I was going to ask whether Dr. McMechan had had any experience with a man who had been a drug fiend, but had given it up several years before the operation. I have had a number of cases of that kind, and in each case I had considerable trouble in the induction of anesthesia.

DR. F. H. MCMECHAN, Cincinnati: Concealment of alcoholism or drug habituation is the thing to be feared. It is surprising how well a morphin addict will stand the most grueling operative procedure, if he has managed to conceal about his person or the bed a sufficient amount of morphin to carry him through his stay in the hospital. This serves to emphasize Dr. Teter's remark that the usual dose of alcohol or opium should be administered before the operation. Reports have come in from several of the base hospitals in France stating that certain surgeons and anesthetists are having considerable difficulty in anesthetizing ether drinkers. Regarding the length of time that the alcoholic taint, so far as it pertains to anesthesia, persists, I would say that I have had Dr. Nagel's experience in men who had reformed and, according to their statement, had not touched liquor for ten years. When you have an alcoholic who is in delirium tremens or coma and requires an operation, try reducing the intracranial pressure by spinal puncture and the use of bromid intraspinally. After the operation is finished and the patient develops delirium tremens, use the same technic, and it will spare you hours of struggling. The effects are frequently visible in an hour after the use of the remedial measure.

Ether-Oil Colonic Anesthesia

DR. WALTER LATHROP, Hazelton, Pa.: The method is valuable in cases in which fear is a prominent element, as in hyperthyroidism, and in asthmatic and bronchial troubles, especially in that condition known as miners' asthma. It is

contraindicated in rectal diseases or when pain is caused by the injection. The postoperative effects are excellent, with nausea and vomiting less than by inhalation. In abdominal operations, there is usually freedom from pain for some time after the patient is returned to bed, although consciousness has been fairly regained. The method is especially valuable in head and neck work. It taxes the lungs and kidneys less than other methods of anesthesia. The operation can be performed without the patient's realizing it, so that there is little fear on the patient's part as compared with that shown in other methods. Crile's technic can be used, if desired. We have employed this method in 165 cases of thyroidectomy and in sixty-nine cases of abdominal operations.

DISCUSSION

Dr. J. J. King, New York: I wish to report a case I had last summer, in a boy 7 years old, who had very large, septic, toxic adenoids. He had been born a "blue baby" with a patent foramen ovale. The normal color of the patient was a purple cherry. Dr. Gwathmey thought that he could give the anesthetic safely, using oil and ether by rectum. The operation was performed safely. His color was not very different from what it was ordinarily, especially when excited. He was still under the influence of the anesthetic when taken back to his room, and when he waked up he did not know that an operation had been performed.

Dr. C. J. Peck, New York: My last operation under this method of anesthesia was a long and tedious one on the breast of a patient who was very nervous and dreaded the anesthetic more than anything else. It was given in bed, and she went off to sleep. She had no vomiting. For a long time we were unable to convince her that the operation had been performed. In breast cases and operations on the neck and face, it is an ideal method of anesthesia.

Relative Value of So-Called Warmed and Unwarmed Ether Vapor

Drs. B. F. Davis and F. B. McCarty, Chicago: Even if warmed anesthetic vapors are as effective as has been claimed in preventing or compensating for heat loss, they are, with two deaths from hyperthermia to their credit in a relatively short series of cases, too dangerous for general use. We maintain that there is no evidence that warmed air-ether vapor gives a greater margin of safety in anesthesia than unwarmed, that the preliminary warming of the vapor does not decrease pulmonary irritation, and that the warmed vapors may be distinctly uncomfortable for the patient during the inhalation of the anesthetic. We refuse to accept the conclusions of Gwathmey regarding the lower toxicity of warmed vapor, on account of certain experimental errors that we believe his work to contain. On the basis of our own experimental work and of theoretical considerations, we contend that, gram for gram of ether, there is no difference in the efficiency or toxicity of warmed and unwarmed vapor. The heat lost by a patient during a general anesthesia is no greater in amount than that lost during natural sleep. Unlike the case in natural sleep, however, if the patient is not sufficiently covered, the temperature may fall excessively, because the patient cannot be wakened by the cold, and so caused to care for himself. The amount of heat necessary to warm the average anesthetic vapor to body temperature is far too small to account for the heat lost by the average patient. Finally, from the standpoint of simplicity and general adaptability, the unwarmed vapor is superior.

DISCUSSION

Dr. Frank W. Pinneo, Newark, N. J.: I think the authors have reached a wrong conclusion in attempting to show that unwarmed air is just as good as warmed vapor, because there are no chest complications, for there are other complications that enter into the question. In regard to toxicity, Gwathmey's experiments have shown that animals are less easily killed by warmed vapor.

Dr. James T. Gwathmey, New York: In our experiments the anesthetics fell into about the same relation that the European and American statistics place them as regards the safety line. We also found that if we heated ether and chloroform, we had an anesthetic almost as safe as nitrous oxid and oxygen. When chloroform was given by an apparatus in which we had constant rebreathing and warmth, the subjects went under it as they do under nitrous oxid and oxygen, and came out the same way when the mask was removed.

Dr. Walter M. Boothby, Boston: The reason that the animals studied by Dr. Gwathmey took longer to kill with the warmed vapor was that warmth caused increased volume and less tension. The animals were not getting the ether to the same volume; and, naturally, they took longer to be killed.

Dr. B. F. Davis, Chicago: Practically all ether vapor administered is administered at body temperature, whether in the open mask or in a rebreathing bag. The latter would be at room temperature, about 70 F. Therefore, it is very little work for the body to heat the vapor the rest of the way. As none of the vapor used is really cold, it is hard to see why it should be irritating on account of its temperature.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

August, XII, No. 2

1 *Subcutaneous Injections of Magnesium Sulphate in Chorea. H. Heiman, New York.—p. 109.
2 *Study of Normal and Pathologic Cerebrospinal Fluids in Children. M. R. Johnston, St. Louis.—p. 112.
3 Some Early Symptoms Suggesting Protein Sensitization in Infancy. B. R. Hoobler, Detroit.—p. 129.
4 Creatinin and Creatin Content of Blood of Children. B. S. Veeder and M. R. Johnston, St. Louis.—p. 136.
5 Energy Metabolism of Cretin. F. B. Talbot, Boston.—p. 145.
6 Tendency of Diphtheria Bacillus to Localize in Upper Respiratory Tract. D. O. Walthall, Ann Arbor, Mich.—p. 149.
7 *Infantile Scurvy. Its Influence on Growth. A. F. Hess, New York.—p. 152.
8 Résumé on Infectious Diseases. A. H. Beifeld, Iowa City, Iowa. —p. 166.

1. Injections of Magnesium Sulphate in Chorea.—Five successive patients with chorea were treated by Heiman with repeated subcutaneous injections of magnesium sulphate. In every case a 25 per cent. sterile solution was used. The dose ranged from 0.01 gm. magnesium sulphate per kilogram of body weight (that is, 0.04 c.c. of the 25 per cent. solution) at the beginning of treatment, with a daily increase to 0.2 gm. magnesium sulphate per kilogram of body weight (that is, 0.8 c.c. of the 25 per cent. solution) at the termination of treatment. The actual amounts of solution used daily were from 3 to 30 c.c. The injections were given three times daily for from ten to fifteen days, with the ordinary record syringe, into the back loins and buttocks of the patients. In only one of the five patients treated by this method was there a marked improvement after the series of injections, and in this case the choreic movements gradually diminished, the child became less irritable and general improvement was noted. In the four other cases there was no improvement, the magnesium sulphate having had apparently no effect whatever on the psychomotor system. The results of the treatment in this series of cases was not sufficiently promising in Heiman's opinion to justify a continuation of the treatment.

2. Cerebrospinal Fluids in Children.—As an index of pathologic change in the cerebrospinal fluid Johnston found that the colloidal gold reaction is more delicate than any other test employed. He believes that a positive Lange reaction may be considered sufficient evidence of a pathologic process affecting the cerebrospinal nervous system, though the fluid in question is negative to all other tests. A normal fluid causes no reduction of the colloidal gold. The presence of globulin in the cerebrospinal fluid, as determined by the

tests of Noguchi and Nonne, is indicative of an inflammatory process, but is of no specific import. A negative globulin test may occur in a pathologic fluid. The quantitative estimation of organic substances by the reduction of tenth-normal potassium permanganate shows such wide variations in normal fluids and those with slight pathologic change that it has no value as a diagnostic measure. The qualitative presence of dextrose in the cerebrospinal fluid as determined by the reduction of Fehling's solution is of little value in the diagnosis of lesions of the central nervous system. The specific diagnostic import of a given test is dependent on the character of the process causing the change in the fluid examined. Thus the cell content and bacteriologic findings are final in purulent and tuberculous meningitis. In the colloidal gold test the characteristic syphilitic zone reaction in hereditary syphilis is sufficient to establish the actual or potential existence of a syphilitic involvement of the central nervous system.

7. **Infantile Scurvy.**—Although pasteurized milk is to be recommended on account of the security which it affords against infection, Hess directs attention to the fact that we should realize that it is an incomplete food. Unless an antiscorbutic, such as orange juice, the juice of orange peel, or potato water is added, infants will develop scurvy on this diet. This form of scurvy takes some months to develop and may be termed subacute. In order to guard against it, infants fed exclusively on a diet of pasteurized milk should be given antiscorbutics far earlier than is at present the custom, even as early as at the end of the first month of life.

Archives of Pediatrics, New York

July, XXXIII, No. 7

9 *Meningitis in Newborn and in Infants Under Three Months of Age. H. Koplik, New York.—p. 481.
10 *Further Experience With Homogenized Olive Oil Mixtures. M. Ladd, Boston.—p. 501.
11 Group of Pertussis Cases Occurring Simultaneously in One Family. P. J. Eaton and E. B. Woods, Pittsburgh.—p. 513.
12 Treatment of Paralysis Following Acute Anterior Poliomyelitis. W. F. Schaller, San Francisco.—p. 516.
13 Creolin in Scabies in Infant. D. W. Montgomery, San Francisco. —p. 525.
14 Use of Albumin Milk. L. L. Meininger, San Francisco.—p. 529.
15 Problem of Dental Hygiene in Children. G. S. Millberry, San Francisco.—p. 533.

9. **Meningitis in Newborn and Infants.**—Meningitis in the newborn, Koplik claims, is not only badly described in the literature, but a careful perusal of the cases thus far published leads to the impression that the condition is overlooked, or, at first, scarcely suspected. The reason for this is at first glance evident. The newborn does not react to infection in a way to draw the attention. Many cases escape recognition because the onset is insidious, and it is only after the symptoms have developed to the extent of giving the picture of cerebral pressure that the case is suspected to be one of meningitis. The newborn reacts very slowly to cerebral irritation, and the picture of meningitis is at first masked by rational symptoms which are apt to mislead. The objective symptoms which would lead to suspect a meningitis in the newborn are first, convulsions, repeated with convulsive movements of the eyes and muscles of the extremities in the intervals, fever, constant restlessness, with vomiting; with this a suppressed groaning respiration and a temperature curve, at first very high, then gradually remitting or intermitting, and, finally, falling to or near the normal. Most of the cases after a week's duration develop a rigidity of the neck and a drawing back of the head, which indicates clearly the nature of the affection. In other words, opisthotonos is slow in developing. The most frequent diagnosis apt to be ventured in meningitis is tetany.

Of 12 cases, in which the spinal fluid was examined bacteriologically, 4 contained streptococcus in pure culture, 3 pneumococcus, 4 meningococcus and 1 coli bacillus, the last as a result of systemic infection from a coli pyelitis. The prognosis is very grave. All the streptococcus patients died, as well as the pneumococcus patient. The coli case developed hydrocephalus and died later in infancy, whereas all but one of the meningococcus patients died. The only one which recovered did so with hydrocephalus.

10. **Experience with Homogenized Olive Oil Mixtures.**—As Ladd's experience had convinced him that olive oil homogenized in milk mixtures was well tolerated in the diarrheas due to indigestion and fermentation, he was interested to see if it could not be used safely in the early days of convalescence from infectious diarrheas to supply additional calories and prevent or lessen the loss of weight which occurs in such cases. The general scheme of treatment was as follows: After the initial period of catharsis and starvation, a fat free lactic acid milk, diluted two thirds or one half, was given. If the infecting organism proved to be of the Flexner or Shiga type, dextrimaltose was added up to 4 or 5 per cent. and sometimes barley water. If the gas bacillus was present, no carbohydrates were added. After a period of several days, when the acute febrile disturbance showed distinct signs of subsiding, olive oil was homogenized with the lactic acid milk, in percentages of 1.00, 1.50 and if well tolerated 2.00, thus adding considerably to the caloric value of the food. The results briefly summarized were as follows: There were 19 cases of infectious diarrhea on the service, 15 of Flexner bacillus type, 1 of the gas bacillus and 3 undetermined. Four patients died, giving a mortality of 22 per cent., about the same, Ladd was informed, as in the other services. Of the 15 patients that lived 8 were in the hospital on an average of twenty-one days each and lost over their entrance weight an average of 15 ounces. Seven were in the hospital on an average of fourteen days each, and gained an average of 10.7 ounces over their entrance weight. The average net loss of all 15 surviving cases was therefore only 3 ounces over their entrance weight.

Boston Medical and Surgical Journal

July 27, CLXXV, No. 4

16 *Hemoptysis as Symptom. F. T. Lord, Boston.—p. 113.
17 Common Sense and Consumption. J. B. Hawes, 2d, Boston.—p. 115.
18 Sprains and Sprain Fracture of Wrist Joint. A. C. Burnham, New York.—p. 118.
19 Study of Peptic Ulcer From Diagnostic Point of View. R. H. Philbrick, Northfield.—p. 121.
20 *First Case in Which Abdominal Surgery was Suggested for Relief of Epilepsy. H. Powers, Brookline and F. H. Lahey, Boston. —p. 124.
21 Prolapsus Ani in Adults. T. C. Hill, Boston.—p. 127.
22 Scientific Research in Chronic Medicine From Physiologic Point of View. F. H. McCrudden, Boston.—p. 129.
23 Epidural Intraspinal Tumor of Two Years' Duration; Operation; Recovery. W. E. Paul, Boston.—p. 133.
24 Pistol Shot Wound of Stomach. C. A. Atwood, Taunton.—p. 136.
25 *Pathology of Clavus (Soft Corn). H. M. Chase, Boston.—p. 134.

16. **Hemopytsis as Symptom.**—In the attempt to reach a more definite conclusion as to the meaning of this symptom, Lord reviewed 549 clinical cases of hemoptysis and 307 instances of hemoptysis with necropsy. Excluding from consideration all cases in which the diagnosis has not been established, there were thirty instances in which hemoptysis was an initial event, unpreceded or followed by pulmonary or other symptoms or accompanied only by cough with or without scanty expectoration. In this number are included twenty clinical cases with sputum positive for tubercle bacilli at the time of the bleeding or later in their course. The ten remaining were necropsy cases and nine showed obsolete, inactive or active pulmonary tuberculosis. The single exception to the tuberculous origin of hemoptysis in this group illustrates an uncommon cause. This was the case of a man of 37, who entered the hospital in 1904 with a history of winter cough without expectoration for three years. He had an abundant hemoptysis three days before entrance, and death occurred two days after admission from a recurrence of the hemorrhage. At necropsy syphilitic ulceration of the trachea and bronchi, with rupture of a large branch of the pulmonary artery into the right primary bronchus, was found.

Of the various causes of hemoptysis in the probable order of frequency, pulmonary tuberculosis doubtless occupies first place in consideration of the high incidence of this disease and the occurrence of hemoptysis in about 60 per cent. of all cases at some time in their course. It is represented

among the 307 necropsy cases at the Massachusetts General Hospital by only 27 cases, owing to the usual exclusion of patients in the active stage of the disease from the wards of the hospital. Chronic passive congestion occupies second place, but heads the list of the necropsy series with 105 cases. Then follow lobar (not bronchopneumonia) pneumonia, with 100 cases, pulmonary infarction with 48 cases, nontuberculous pulmonary suppuration with 14 cases, aortic aneurysm with 7 cases, new growths of the lung with 5 cases and ulceration of the trachea and bronchi due to syphilis in one case.

Copious bleeding is seldom seen apart from pulmonary tuberculosis, occasional instances of abscess and gangrene, ruptured aneurysm, and ulceration of the trachea and bronchi. Other causes than those enumerated are rare and were not found among the necropsied series. The records are of interest in a negative sense in their failure to confirm the still too prevalent belief that vicarious menstruation is an adequate cause of hemoptysis, no example of which was found in the necropsy series. This and other evidence indicate that it cannot properly be regarded as a cause apart from some pulmonary lesion which is tuberculous in the great majority of the cases.

20. **Abdominal Surgery Suggested for Relief of Epilepsy.**—In the case cited by Powers and Lahey intestinal stasis was believed to have some bearing on the existence of the epilepsy. The possibility of relief through surgery suggested itself. The patient was a typical epileptic as described in the textbooks. Eight years of treatment by the various bromids and by the salt free diet, the milk and vegetable diet, etc., was a complete failure. Finally, in September, 1914, a colectomy was performed. After his recovery from the operation, he was unwilling to be placed on a régime, ate everything that he cared for and, after his old habit, he bolted and gormandized. Notwithstanding this, he remained free from attacks until December, 1914. In March, 1915, he had another attack. He was then willing to submit to treatment and was placed on a diet. This diet is not vegetarian or salt free and in it the abuse of milk is avoided. Briefly, it excludes fried food, fresh white bread, pastry, beans, milk, except in moderate quantities only with meals, and uncooked fruit except oranges, figs and dates. He has remained more than a year without an attack and without vertigo or any so-called epileptic equivalent. During that time he has been in business and he is more keen and energetic than the average individual. No discomfort has resulted from the operation except that he has two unformed movements daily.

25. **Pathology of Clavus (Soft Corn).**—Clavus, or soft corn, presents, on the surface, an area of thickened epidermis, moistened and at times macerated by discharge of lymph through an opening in the thickened area. This opening according to Chase leads through a direct or indirect tortuous channel into the subcutaneous areolar tissue. This lymph channel may or may not connect with a tendon sheath. It varies in length, according to its tortuous direction, from one to one and one-fourth inches in depth. In none of his cases has Chase been able to probe the sinus until the thickened epidermal layer has been removed. The treatment advocated is dissection and excision of the lymph sac. If the wall tears and is too thin to excise, wipe with phenol and insert small wick for forty-eight hours. Transverse adhesive strapping the entire length of the metatarsals. Keep the toes still. Change gauze dressing as necessary, lymph secretion may be slight or excessive for several days. Healing by granulation and permanent cure.

Cleveland Medical Journal

June, XV, No. 6

26 Enzyme Theory of Life. L. T. Troland, Cleveland.—p. 377.
27 Hernias of Urinary Bladder. A. P. Heineck, Chicago.—p. 388.

Georgia Medical Association Journal, Augusta

July, VI, No. 3

28 Hydrotherapy. W. W. Blackman, Atlanta.—p. 41.
29 *Dangers of Painless Blind Abscess; Emetin Flush. R. Adair, Atlanta.—p. 45.
30 *Gastro-Enterostomies Performed During Two Extremes of Life. E. C. Davis, Atlanta.—p. 50.
31 Goiter Based on Study of Two Hundred and Six Cases. E. G. Jones, Atlanta.—p. 54.
32 Report of Unusual Case of Tubal Pregnancy Terminating in Rupture. E. M. Stokes, Jakin.—p. 61.

29 and 30. Abstracted in THE JOURNAL, May 6, pp. 1490 and 1491.

Illinois Medical Journal, Chicago

July, XXX, No. 1

33 Military Preparedness From Surgical Standpoint. G. N. Kreider, Springfield.—p. 1.
34 Importance of Postnasal Space as Focus of Infection in Infants and Young Children; Report of Cases. G. E. Baxter, Chicago. —p. 5.
35 After Effects in Nose and Throat of Usual Winter Cold. O. H. Maclay, Chicago.—p. 10.
36 Medical Inspection of Schools. R. D. Luster, Granite City.—p. 13.
37 Problem of Vaccine Therapy. G. H. Sherman, Detroit.—p. 14.
38 Pregnancy Complicated by Syphilis. H. A. Kraus, Chicago.—p. 18.
39 Physicians' Accounts. C. M. Kingery, Chadwick.—p. 20.
40 Blood Ferments in Pregnancy. F. H. Falls, Chicago.—p. 22.

Indiana State Medical Association Journal, Fort Wayne

July, IX, No. 7

41 Deviations of Nasal Septum and Submucous Operation. W. F. Clevenger, Indianapolis.—p. 277.
42 *Diseases of Gallbladder and Their Influence on Adjacent Organs. W. H. Williams, Lebanon.—p. 283.
43 *Chronic Suppurative Mastoiditis Accompanied by Intracranial Pressure; Report of Case. E. J. Lent, South Bend.—p. 290.
44 *Defenses of Upper Respiratory Tract and Their Preservation. W. N. Culmer, Bloomington.—p. 294.
45 Radium Treatment of Epithelioma. T. C. Kennedy, Indianapolis. —p. 298.

42. Abstracted in THE JOURNAL, Nov. 20, 1915, p. 1846.

43 and 44. Abstracted in THE JOURNAL, Oct. 30, 1915, pp. 1576 and 1577.

Journal of Laboratory and Clinical Medicine, St. Louis

July, I, No. 10

46 *Simple Interpretation of Polygraphic Tracings. E. P. Carter, Cleveland.—p. 719.
47 *Diazo and Urochromogen Reactions as Prognostic Aids in Pulmonary Tuberculosis. H. J. Corper and F. F. Callahan, Chicago. —p. 740.
48 Hospital Chemical Laboratory. N. W. Janney, New York.—p. 747.
49 Ninhydrin Color Reactions of Proteins and Their Split Products. H. W. Emerson and J. S. Chambers, Ann Arbor, Mich.—p. 752.
50 *Bulgarian Bacillus in Treatment of Vulvovaginitis. M. B. Cohen, Cincinnati.—p. 757.
51 Simple Colorimeter for Clinical Purposes. V. C. Myers, New York.—p. 760.
52 *Positive Test for Blood in Stomach. M. B. Leviton, Chicago. —p. 761.

46. **Simple Interpretation of Polygraphic Tracings.**—The fundamental principles of the polygraphic tracings and the method of procedure in their analysis are described by Carter; their value as an aid to the proper understanding of many heart conditions is emphasized, and their importance in the correct diagnosis of the heart arrhythmias insisted on.

47. **Diazo and Urochromogen Reactions as Aids in Tuberculosis.**—According to Corper and Callahan patients dying of pulmonary tuberculosis give a positive diazo and urochromogen test at some time during the last six months of their illness. Whenever both tests are negative during this period death was found to be due to some intervening condition, such as pulmonary hemorrhage, tuberculous meningitis, etc. Cases of chronic fibroid tuberculosis generally give both reactions negative except when same is explicable by some acute exacerbation, acute intercurrent infection or acute pleural effusion. In active cases of pulmonary tuberculosis when both reactions are positive and remain so for most of the succeeding examinations it is of grave prognostic import. When both reactions are negative in acute cases no stress can be laid on the findings. There seems to be no regularity between the presence of either reaction, its disappearance to be displaced by the other or by both. The presence of a urochromogen reaction in cases showing no clinical symptoms is of no prognostic value. No diazo reactions were obtained in clinically inactive cases, whereas a number of urochromogen reactions were obtained in such cases. The

presence of a diazo or of both reactions is a danger signal of grave import. Careful clinical observations will, from a prognostic standpoint, give more information than the diazo and urochromogen tests in pulmonary tuberculosis. The authors urge that wherever possible both tests should be performed, but of the two the diazo should be given the preference.

50. **Bulgarian Bacillus in Treatment of Vulvovaginitis.**—Cohen claims that the bacillus bulgaricus does not thrive in the human vagina and is therefore of little use in the treatment of vulvovaginitis. Three cases were treated by this method. Each one had a very profuse discharge in which gonococcus like organisms could be easily demonstrated in smears taken by the swab method. Smears from the vagina were examined twice weekly for the presence of Bulgarian bacilli and gonococcus like organisms. Not once was the Bulgarian bacillus demonstrated in direct smear even when it was taken within twelve hours after an injection. In two cases, after ten and thirteen days of treatment respectively, the discharge ceased and no gonococci could be found in the vaginal smears. The treatment was discontinued for two days during which time Bulgarian bacilli were demonstrated with some difficulty in cultures from the vagina using the glacial acetic acid method described by Heinemann and Hefferman. On the morning of the third day a discharge reappeared in which gonococcus like organisms could be shown. Treatment, using the culture which had been isolated from the vagina two days previously, was resumed and was continued for three weeks. During this time several negative slides were obtained, but almost always after sufficient search a few typical gonococci could be found. The third case developed measles on the eighth day of treatment and was transferred to the hospital for contagious diseases where the vaginitis was not treated. On the thirteenth day after developing measles, smears made from the vagina were positive for gonococcus like organisms and negative for Bulgarian bacilli. The bacillus was demonstrated in small numbers by cultural methods.

52. **Positive Test for Blood in Stomach.**—The test for blood described by Leviton is a modification of Loeper and Binet's test of gastric contents (washings of the empty stomach), except that there is no preliminary lavage and the contents are first neutralized to avoid laking of the blood cells. The technic is as follows: The patient is directed to omit anything for breakfast, including liquids, to rinse the mouth and teeth frequently and expectorate any saliva that might form, so that little or none of the cellular elements of the buccal cavity might be swallowed (epithelium, pus cells, blood, etc.). A half glass of water containing a dram of sodium bicarbonate is administered with a glass of saline solution a few minutes later. The abdomen is then thoroughly massaged and gently squeezed for a few minutes and the contents aspirated by means of a glass irrigating syringe attached to a narrow caliber colon tube (15 French), 4 mm. in diameter. It is usually necessary to assist the passage of the soft tube down the pharynx by pushing it down with one finger in the mouth to prevent kinking. Tests showed that even in concentrated soda solution the red cells remained comparatively unharmed for a long time.

Journal of Nervous and Mental Disease, Lancaster, Pa.

July, XLIX, No. 1

53 War and Nervous System. L. F. Barker, Baltimore.—p. 1.
54 *Symptomatology and Diagnosis of Intracranial Tumors of Middle and Posterior Cranial Cavities, Growing From Region of Gasserian Ganglion and Cerebellopontine Angle. W. B. Cadwalader, Philadelphia.—p. 11.
55 What Do Psychiatrists Mean? A. F. Bronner, Chicago.—p. 30.
56 Cooperation of Psychologist and Physician. C. Schmitt, Chicago. —p. 34.
57 *Hoffman's Sign or Digital Reflex. T. S. Keyser, Cleveland.—p. 51.

54. **Symptomatology of Intracranial Tumors.**—The following is a brief summary of the cases reported by Cadwalader: 1. Cerebellopontine tumor. Symptoms.—Ataxia, weakness of the seventh nerve, left third nerve and motor branch of the fifth nerve; cerebellar attitude, optic atrophy and extreme hunger. Deafness was not recorded. 2. Right-sided cerebellopontine tumor. Symptoms.—Ataxia, failing vision, nausea and vomiting, deafness on the right side, headache, seventh nerve weakness on the right side, early disturbances of the sensory branch of the fifth nerve on the right side, "numbness," and choked disk. 3. Cerebellopontine tumor. Symptoms.—Patellar reflex and Achilles tendon reflex were lost; gait ataxic; headache, dizziness, optic neuritis, nystagmus, and paresthesia of the left side of the face. 4. Cerebellopontine tumor. Symptoms.—Vertigo, failing vision, ataxia, left eighth nerve deafness, left motor fifth nerve weakness, left seventh nerve weakness, left external rectus and right internal rectus weakness; nystagmus with movement more marked to the right. 5. Cerebellopontine tumor. Symptoms.—Ataxia, headache, muscular spasticity, mental confusion, choked disk. 6. Cerebellopontine tumor. Symptoms.—Persistent and severe headache, choked disk greater on the left side; paresis of the left external rectus, slight paresis of the left side of face; lost patellar and Achilles tendon reflexes. Three attacks of unconsciousness, the first with convulsions, the character of which cannot be determined. A remarkable feature is the absence of th ataxic gait. 7. Cerebellopontine tumor. Symptoms.—Nausea, vertigo, headache, pain in the right side of the face, tinnitus and deafness in the right ear, ataxia when standing and failing vision. 8. Endothelioma removed from the posterior surface of the petrous portion of the temporal bone. Symptoms.—Twitching of the right facial muscles, followed by paralysis, auditory hallucinations, followed by deafness on the right side, ataxia, choked disk, headache, nausea and vomiting, impairment of taste. 9. Endothelioma removed from the posterior surface of the petrous portion of the temporal bone. Symptoms.—Nausea, vomiting, impairment of vision, choked disk, right-sided deafness, anesthesia of the right side of face.

57. **Hoffman's Sign or Digital Reflex.**—"Digital reflex" is the term proposed by Keyser for "Hoffman's sign." The reflex typically consists of a flexion of the terminal phalanx of the thumb and of the second and third phalanges of one or more of the fingers when the operator suddenly nips the nail of the index, middle, or ring finger. The reflex is found to be practically always present in organic lesions of the upper motor neurones except during the period of shock, and also in some functional cases associated with lively deep reflexes. The anatomy shows the afferent nerves stimulated have the same segmental origin as the motor fibers innervating the muscles participating in the reflex. Various facts are recorded to show that the reflex belongs to the group of defense movements in contradistinction to the tendon reflexes.

Medical Record, New York

July 29, XC, No. 5

58 Nitrous Oxid Oxygen, Most Dangerous Anesthetic. J. F. Baldwin, Columbus, Ohio.—p. 177.
59 Pellagra. J. Auld, Philadelphia.—p. 181.
60 Drug Habit. F. A. McGuire and P. M. Lichtenstein, New York. —p. 185.
61 Physics of Percussion and Auscultation of Chest. F. H. Heise, Trudeau.—p. 191.
62 Poliomyelitis, With Its Preparalytic Symptom. L. Fischer, New York.—p. 194.
63 Hypochondria. C. King, Franklinville.—p. 195.
64 Consideration of Opsonic Technic as Possibility of Evidence of Leukocytic Inhibition. A. H. May, Buffalo.—p. 196.

Modern Hospital, St. Louis

July, VII, No. 1

65 Nature, Value and Necessity of Team Work in Hospital. C. H. Mayo, Rochester, Minn.—p. 1.
66 Robinson Memorial of Massachusetts Homeopathic Hospital. W. C. Hill, Boston.—p. 4.
67 Medical Profession's Obligation to Patient. H. A. Christian, Boston.—p. 9.
68 Safeguarding Hospital's Most Valuable Food — Milk. C. E. North, New York.—p. 13.
69 Small Community Hospital — Its Finances. J. A. Hornsby, Chicago.—p. 18.
70 Principles of Daylight and Artificial Lighting of Hospitals. E. R. Knowles, New York.—p. 22.
71 Should Hospital Buy Power or Install Plant? F. Sutton, New York.—p. 31.
72 Artificially Colored Foods. J. P. Street, New Haven, Conn.—p. 33.
73 What Physician Should Contribute to Team Work. E. Evans, La Crosse, Wis.—p. 46.

74 What Patient Should Contribute to Team Work. W. E. Fairfield, Green Bay, Wis.—p. 48.
75 Community's Obligation for Care of Its Indigent Sick and Injured. F. S. Bunn, Youngstown, Ohio.—p. 49.

New York State Journal of Medicine

July, XVI, No. 7

76 *Recent Progress in Operative Treatment of Empyema of Thorax. H. Lilienthal and M. W. Ware, New York.—p. 331.
77 *Technic of Cesarean Section. W. M. Brown, Rochester.—p. 340.
78 *Review of Five Hundred Cases of Pelvic Infection with End Results. J. O. Polak, Brooklyn.—p. 344.
79 *Infection of Uterine Appendages; Its Sequelae; Its Nonsacrificial Treatment. E. E. Montgomery, Philadelphia.—p. 348.
80 *Resection of Pars Interstitialis in Diseases of Fallopian Tubes, with View of Preserving Uterus. L. K. P. Farrar, New York.—p. 351.
81 Intestinal Obstruction in Children with Special Reference to Intussusception. E. W. Peterson, New York.—p. 357.
82 Intestinal Obstruction. I. M. Snow, Buffalo.—p. 359.
83 Surgical Treatment of Intestinal Toxemia. J. M. Lynch and J. W. Draper, New York.—p. 362.
84 Self-Supporting Hospital. J. B. Clark, New York.—p. 369.
85 Medical Legislation. W. J. Cruikshank, Brooklyn.—p. 371.

76. Also published in the *Medical Record*, July 15, 1916.
77. Abstracted in THE JOURNAL, June 24, p. 2122.
78, 79 and 80. Abstracted in THE JOURNAL, June 24, p. 2124.

Ohio State Medical Journal, Columbus

July, XII, No. 7

86 Constructive vs. Defensive Medical Organization. W. E. Lower, Cleveland.—p. 479.
87 Cholecystostomy vs. Cholecystectomy. H. S. Noble, St. Marys.—p. 483.
88 Uterine Fibromyomata and Cardiovascular Changes. B. R. McClellan and R. H. Grube, Xenia.—p. 487.
89 Conservation of Vision. G. C. Schaeffer, Columbus.—p. 488.
90 Supervision of Health of Schoolchildren in Cincinnati. W. H. Peters, Cincinnati.—p. 491.

Pennsylvania Medical Journal, Athens

July, XIX, No. 10

91 Pennsylvania's Compensation Law and Physician. H. A. Mackey, Philadelphia.—p. 725.
92 Pennsylvania Workmen's Compensation Act as it Affects Hospitals. W. H. Walsh, Philadelphia.—p. 731.
93 How Workmen's Compensation Act May Be Made Satisfactory to Profession. J. B. McAlister, Harrisburg.—p. 736.
94 Workmen's Compensation Law and Its Effect on Medical Profession. C. A. E. Codman, Philadelphia.—p. 739.
95 Workmen's Compensation vs. Medical Compensation. F. L. Van Sickle, Olyphant.—p. 747.
96 What Attitude Should Physician Take Toward Health Insurance? G. Blumer, New Haven Conn.—p. 756.
97 College Health Work. W. E. Forsythe, State College.—p. 765.
98 Scopolamin-Morphin Anesthesia in Labor; Report of Seven Years' Experience. J. R. Freeland, Pittsburgh.—p. 768.
99 Some Data in Regard to Alcoholic Insanity in Kansas. P. B. Newcomb, Osawatomie, Kan.—p. 776.
100 Shock Neuroses and Psychoses in Present War. E. K. Tullidge, Philadelphia.—p. 778.
101 England's Efficient Surgery and Nursing Questionable Mercy. E. O'N. Kane, Kane.—p. 782.

Public Health Journal, Toronto

July, VII, No. 7

102 Alcohol from Public Health Standpoint. J. W. S. McCullough, Toronto.—p. 335.
103 Attitude of Psychiatrist Toward Alcoholism as Cause of Insanity. C. K. Clarke, Toronto.—p. 337.
104 Royal Institute of Public Health. A. Corbett-Smith.—p. 339.
105 Mother In Industry. J. Martin.—p. 347.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

July, XXIV, No. 7

106 Surgical Notes of European Clinics Visited During American Surgeon's Clinical Tour. J. E. Gilcreest, Gainesville, Texas.—p. 193.
107 Prevention and Treatment of Deformities. B. Belove, Kansas City, Mo.—p. 200.
108 Choice of Operations on Frontal Sinus. R. H. T. Mann, Texarkana, Ark.—p. 203.

United States Naval Medical Bulletin, Washington

July, X, No. 3

109 Study of Artificial Illumination. J. D. Gatewood, U. S. Navy.—p. 401.
110 Concussion of Brain. J. C. DaCosta, U. S. Navy.—p. 416.
111 Atmosphere and Its Relation to Human Mechanism, with Special Reference to Naval Service. R. C. Holcomb, U. S. Navy.—p. 430.
112 Experience at Red Cross Auxiliary Naval Hospital of Hamburg, Germany, During First Eight Months of Present War. H. G. Beyer, U. S. Navy.—p. 465.
113 Diagnosis of Abdominal Pain. W. A. Brams, U. S. Navy.—p. 476.
114 Dosage in Roentgenotherapy. A. Soiland, U. S. Navy.—p. 484.
115 Physical Examination of One Thousand, Eight Hundred and Eighty Applicants for Enlistment in Navy. C. H. Lowell, U. S. Navy.—p. 487.
116 Practicability or Desirability of Omitting from Supply Table Certain Drugs. J. A. Ortolan, U. S. Navy.—p. 490.
117 First Aid Dressings on Battleships. G. F. Freeman, U. S. Navy.—p. 495.
118 Lewisohn Citrate Method of Blood Transfusion; Report of Case of Traumatic Gluteal Aneurysm in Which This Method was Employed. R. B. Williams, U. S. Navy.—p. 503.
119 Report of Case of Ludwig's Angina. W. A. Brams, U. S. Navy.—p. 506.
120 Rupture of Liver; Report of Case. C. W. Depping, U. S. Navy.—p. 510.
121 Syphilis in a Chamorro. L. W. Johnson, U. S. Navy.—p. 511.
122 Report of Case of Intussusception Caused by Meckel's Diverticulum. A. M. Fauntleroy, U. S. Navy.—p. 511.
123 Advantages Noted in Use of McDonald's Solution. P. R. Stalnaker, U. S. Navy.—p. 514.
124 Hematoma of Abdominal Parietes. J. S. Taylor, U. S. Navy.—p. 515.
125 Bayonet Wound of Abdomen. W. B. Hetfield, U. S. Navy.—p. 516.

Washington Medical Annals

July, XV, No. 4

126 What Constitutes Dental Diagnosis. C. M. Gearhart, Washington.—p. 223.
127 What Modern Methods Can Do To Eliminate Oral Sepsis. A. B. Crane, Washington.—p. 227.
128 Relation of Mouth Infection to Goiter. E. H. Reede, Washington.—p. 230.
129 Focal Infection. N. P. Barnes, Washington.—p. 236.
130 Thrombosis of Cavernous Sinus. C. Henning, Washington.—p. 241.
131 History of Bodysnatching. F. Baker, Washington.—p. 247.
132 Case of Traumatic Flat Foot Cured by Operation. W. P. Carr, Washington.—p. 253.
133 Indicanuria; Study of One Hundred Consecutive Cases. J. R. Verbrycke, Jr., Washington.—p. 254.
134 Cases Illustrating Faulty Treatment of Superficial Malignancy. H. H. Hazen, Washington.—p. 255.
135 Infant Mortality with Reference to Postnatal Causes and Their Prevention. E. P. Copeland, Washington.—p. 258.
136 Institutional Mortality Among Infants. H. H. Donnally, Washington.—p. 261.
137 Influence of Infant Welfare Center in Prevention and Reduction of Infant Mortality. J. S. Wall, Washington.—p. 265.
138 Diagnosis of Renal and Ureteral Calculi. H. A. Fowler, Washington.—p. 273.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

July 8, II, No. 2897

1 *Care of Pregnant Woman. A. Donald.—p. 33.
2 Tuberculins and Vaccines. E. H. Coleman.—p. 36.
3 Transfusion of Whole Blood. L. B. Robertson.—p. 38
4 Intravenous Injections in Infants Through Superior Longitudinal Sinus at Anterior Fontanelle. A. Martin.—p. 40.
5 Case of Acute General Hemorrhagic Peritonitis. A. J. Nyulasy.—p. 40.
6 Case of Pneumococcic Conjunctivitis. J. Cropper.—p. 41.

1. **Care of Pregnant Woman.**—The following are some of the points on which stress is laid by Donald. The medical students throughout the country should receive a more thorough training in practical midwifery than is at present the case. In Manchester the medical student is compelled to live in the maternity hospital for a period of four weeks while "taking out" his practical midwifery. More facilities should be given for medical practitioners to have postgraduate instruction. A week or two spent in a modern maternity hospital would bring many of them up to date in methods of diagnosis, of aseptic precautions, and of treatment generally. The study of the pathologic problems connected with abortion and stillbirth should be stimulated by the provision of well equipped clinical laboratories in connection with maternity hospitals. The large cities are now provided with maternity hospitals, and this system should be extended to the smaller towns, and even to the country districts. Hospitals should be established in different areas,

and should be visited from time to time by an obstetric surgeon of experience, whose services should be available, if required, for consultation with the local medical men, or for the more serious emergencies. In this way the medical men in the district who would be attached to the hospital would have their interest increased not only in the care of the pregnant woman, but also in her confinement and in the care of the newborn child. The medical officers of health can do a great deal for the future generations if they will use their influence to try and persuade the health committees throughout the country to pursue this work through the institutions that are already in existence, and to extend the same system to the less densely populated parts of the country.

Edinburgh Medical Journal

July, XVII, No. 1

7 Syphilitic Diseases of Ear. J. S. Fraser.—p. 5.
8 Case of Excessive Local Edema Following Cancer of Breast. D. M. Greig.—p. 23.
9 Three Cases of Beriberi. R. A. Fleming and H. J. C. Gibson. —p. 27.

Indian Medical Gazette, Calcutta

June, LI, No. 6

10 Ischiopagus Duplicity and Certain Teratoid Growths of Pelvic Region. W. R. Williams.—p. 201.
11 Cataract Operations "Old" and "New." M. Corry.—p. 207.
12 "New" (Nath) Method of Extracting Cataractous Lenses. E. A. R. Newman.—p. 213.
13 Dr. Hossack's Paper on "German Influence on Modern Bacteriology—Need for Elimination and Revision." W. D. Sutherland. —p. 216.
14 Hymenolepis Nana (Siebold) (Dwarf Tapeworm) as Parasite of Indian Soldiers. F. H. Stewart.—p. 218.
15 Case of Snake Bite. P. H. Hennessy.—p. 219.
16 Readily Made Splint for Compound Fractures of Femur and Bones of Leg. W. R. J. Scroggie.—p. 220.

Journal of Tropical Medicine and Hygiene, London

July 1, XIX, No. 13

17 Transmission and Examination of Plague Specimens. J. A. Mitchell and G. W. Robertson.—p. 153.
18 Intermediary Hosts of Schistosoma in Natal. F. G. Cawston.—p. 154.

Lancet, London

July 8, II, No. 4845

19 Development of Structures Associated With Roof of Primitive Mouth. J. E. Frazer.—p. 45.
20 *Investigation Into Some of Effects of State of Nutrition of Mother During Pregnancy and Labor on Condition of Child at Birth and for First Few Days of Life. G. F. D. Smith.—p. 54.
21 Report on Casualties from Jutland Coast Action Received at Royal Naval Hospital, South Queensferry. W. M. Ash and C. P. G. Wakeley.—p. 56.
22 Some Uses and Abuses of Massage. E. B. Clayton.—p. 58.
23 Experience of Galyl at Royal Naval Hospital, Chatham. S. F. Dudley.—p. 59.
24 Two Cases of Penetrating Wounds of Abdomen Involving Inferior Vena Cava. D. C. Taylor.—p. 60.
25 Use of Tuberculin in General Practice. J. L. Bogle.—p. 61.
26 Use of Ammonia in Chlorination of Water. J. Race.—p. 71.

20. Nutrition of Mother During Pregnancy.—The total number of cases investigated by Smith was 6,162, of which 3,721 represented hospital experience in London and 2,441 similar experience in Dublin. The percentage of dead births in the case of women of bad nutrition was 7.7 per cent. out of a total of 65 cases. In the class of average nutrition the dead births are 1.1 per cent. out of a total of 183 cases. In the class of good nutrition the percentage is 1.9 for 860 cases. Of 59 labors, 11.9 per cent. were premature in the class of bad nutrition; in the class of average nutrition 2.7 per cent. out of 183 cases; in the class of good nutrition 1.3 per cent. out of 848 cases. Out of 3,693 babies born in the London hospitals 2.1 per cent. died during the first ten days of life. Out of 45 babies born of mothers with bad nutrition 6.66 per cent. died; out of 184 babies of mothers whose state of nutrition was average 0.5 per cent. died; and out of 328 babies of mothers with good nutrition 0.3 per cent. died. The death rate for 12 Dublin babies of mothers with bad nutrition was 8.3 per cent.; in cases in which the mother's state of nutrition was average none of the 8 babies died; where it was good 0.8 per cent. of 512 babies died.

On the whole this study suggests that a state of bad nutrition of the mother at the time of labor due to insufficient food (1) greatly increases the percentage of dead births; (2) greatly increases the percentage of premature births; (3) slightly decreases the average weight of the full-time baby at birth; (4) definitely increases the postnatal infantile mortality; (5) has little, if any, effect during the first eight or ten days on the progress of babies who live during that time, and (6) possibly increase the death rate of babies during the first three or four days of life. A state of good nutrition of the mother at the time of labor, on the other hand, (1) considerably increases the average weight of the full-time baby at birth, and (2) increases the percentage of mothers who are able to suckle during the first eight or ten days of the puerperium, quite apart from any effect from the use of an ample diet during this time.

Bulletin de l'Académie de Médecine, Paris

July 4, LXXV, No. 27, pp. 1-15

27 *Rapid Metastasis After Subsidence of Cancer Under Radiotherapy. (Métastases rapides, à la suite de la disparition de tumeurs malignes traitées par le radium ou la radiothérapie.) E. Kirmisson.—p. 4.
28 Effects on Nervous System of Explosions without Direct Contact. (La commotion des centres nerveux par explosion.—Considerations pathogéniques et cliniques.) L. Lépine.—p. 9.
29 Blindfold Walking Test for Disturbance in Equilibration after Fracture of the Skull. (Note sur un procédé clinique nouveau permettant de mettre en evidence les perturbations du sens de l'équilibre et de l'orientation chez les traumatisés du crâne.) Cestan, P. Descomps and R. Sauvage.—p. 12.

27. Early Metastasis After Radiotherapy of Cancer.—Kirmisson reports the recent rapid and almost complete subsidence of an inoperable tumor in the neck of a soldier of 34 which seemed to be a ganglionary sarcoma. It was hard and knobby and extended from the left ear to the clavicle. All the viscera seemed sound and there was no trace of a tumor elsewhere and no leukocythemia. As the tumor was inoperable it was given radium treatment and in four months had almost totally disappeared, but a large tumor speedily developed in the iliac fossa of the same side. In a second case a large tumor developed in the right clavicle region after fracture of the clavicle in a girl of 12. The tumor presented the characteristics of a periosteal sarcoma, the clavicle not being enlarged. She was given radiotherapy and in a few months the tumor had completely disappeared but as this subsided there was metastasis in the spine, the vertebrae bulging in the lumbar-sacral region and the child suffering intense pain and unable to move her legs. Kirmisson emphasizes that in estimating the clinical value of radiotherapy, the end-results have not been regarded enough. When they are taken into account, the outcome of radiotherapy for sarcomas is found less favorable. He thinks there is some analogy between the subsidence of the spleen under radiotherapy in leukemia, without the progress of the disease being arrested, and the subsidence of sarcomas with early metastasis. In the discussion that followed, Bazy reported a case of lymphadenoma of the left parotid gland which subsided under radium with no signs of further trouble during the six years to date. E. Schwartz mentioned three cases of fulminating metastasis after radium treatment of sarcoma in the neck, thigh or uterus, but he recalls that the radium treatment in such cases is the ultimate resort when conditions are inoperable, and even the few months gained is not to be despised. Routier reported the complete cure for five years to date of a large lymphosarcoma in the left tonsil treated by introducing radium tubes through an incision back of the jaw. In three cases of mammary carcinoma he applied radium or Roentgen rays after mammectomy and the cancers recurred exceptionally early and extensively, two of the women dying within the year of metastases in the lung or spine. It actually seemed as if the prophylactic radiotherapy had hastened metastasis.

Lyon Médical, Lyons

July, CXXV, No. 7, pp. 245-308

30 *Early Operative Reduction of Dislocation of the Temporomaxillary Joint. (De la réduction sanglante précoce dans la luxation tempero-maxillaire.) Guilleminet.—p. 245.
31 Injection of White of Egg Into the Bladder to Simulate Pathologic Albuminuria. A. C. Hollande, and others.—p. 248.

30. **Operative Reduction of Dislocated Jaw.**—In Guillemi 's case the woman had dislocated the jaw on one side while yawning. It was reduced without trouble but five years later she dislocated the temporomaxillary articulation on both sides under similar conditions. It proved impossible to reduce the bilateral dislocation even under general anesthesia. After failure at two sittings, a horizontal incision was made below the malar bone, parallel to the zygomatic process. The fibers of the muscle were separated and the glenoid cavity felt to be empty. The condyle of the jaw was then lifted on the concave surface of curved scissors, and levered into place, resting the scissors lightly on the upper jaw. Hildebrandt in a similar case but of long standing restored the jaw to place by resecting the zygomatic process on each side.

Paris Médical

July 1, VI, No. 27, pp. 1-36

32 Reliability of the Potain Sphygmomanometer. A. B. Marfan.—p. 1.
33 *Continuous Morning Headache with Abnormally High Blood Pressure. (La céphalée matinale continue des hypertendus.) L. Rénon.—p. 4.
34 *Asystole Resulting from Relative Insufficiency of the Suprarenal Glands. (L'asystolie surrénale.) O. Josué.—p. 7.
35 *Puncture in Epigastrium for Pericarditis with Effusion. (La ponction épigastrique de Marfan dans la péricardite rheumatismale avec épanchement.) P. Lereboullet.—p. 14.
36 *Diagnosis of Functional Heart Murmurs. (Diagnostic des souffles fonctionnels du cœur.) P. E. Weil.—p. 18.
37 War Wounds of Arteries. (Lésions des artères par projectiles de guerre.) R. Grégoire.—p. 22.
38 Aneurysmal Hematoma from War Wounds. E. Marquis.—p. 26.
39 *Differential Diagnosis of Cardiac Insufficiency. (Les insuffisants cardiaques.) H. Gillet and G. Boyé.—p. 30.
40 Technic for Obtaining Blood for Serodiagnosis. (Comment recueillir le sang pour éviter les erreurs dans le séro-diagnostic et spécialement dans la réaction de Wassermann.) M. Leconte.—p. 33.

33. **Continuous Morning Headache with Abnormally High Blood Pressure.**—Rénon has been studying for fifteen years a special type of headache which occurs in persons between 45 and 60 with arteriorenal sclerosis. The sclerosis may be the result of interstitial nephritis from scarlet fever in childhood, or of imperfectly treated syphilis, tobacco poisoning or excessive meat eating. A sedentary life, cares, and excessive mental work are cooperating factors. The minimal blood pressure is quite high in these cases. The headache may be diffuse or partial, but usually spares the occipital region. It wakes the patients at 5, 6, or 7 o'clock, grows worse toward 9 and 10, and gradually subsides by noon or 1 o'clock. On account of the intensity of the pain, which renders all physical or mental work impossible, the patient seeks to arrest it with a headache powder or neuralgia medicine. This may soothe it for an hour or two but it then returns, and more drugs are taken until there is superposed drug intoxication and a vicious circle. The heart is large and there is hypertrophy of the left ventricle, usually with polyuria, and slight albuminuria. The headache may be mild on rising and not become severe until after some physical or mental exertion, climbing stairs, writing a letter, or doing other brain work. This is the sign of hypertension which Josué calls "painful thinking" the pain being brought on by mental effort. The course of the headache is progressive, like that of the hypertension. Death occurs suddenly after some special effort or fatigue or indiscretion in diet. The prognosis is graver the higher the minimal pressure. He does not regard the headache as of toxic origin, as the patients urinate copiously at night; mechanical factors from the reclining are more liable to be responsible.

Treatment must include weaning the patient from headache remedies and tobacco. All physical and mental effort must be stopped and absolute repose enforced, keeping the patient on an exclusive milk diet for a week. Two liters milk in the twenty-four hours should be the limit, adding to each liter of milk 2.5 gm. of sodium citrate. During the following two weeks nothing but milk should be allowed on two days each week, with a fruit and vegetable diet the other days. By the end of the third week, a mixed diet can be resumed, allowing meat only once a day, at midday. Salt should be used sparingly; he gives each patient an envelop containing 3 gm. salt for each day, which he can use to suit himself. After three weeks of this dieting and repose, if the headache persists and if the minimal pressure keeps high, he prescribes thiosinamin, keeping it up a long time. It may help and is harmless. He adds that this cannot be said of iodid treatment, which, except in the presence of syphilis, has no action on the arteriosclerosis and blood pressure while it is liable to aggravate the headache. If syphilis is suspected, specific treatment should be given, but very cautiously.

34. **Suprarenal Heart Failure.**—Josué relates that at necropsy in four cases of sudden death from cardiac insufficiency he found the myocardium much hypertrophied and apparently strong, not at all the aspect of a muscle that had given out from weakness, and nothing in the vicinity could be found to explain the heart failure. On the other hand, the suprarenals were always extremely small or diseased in these cases, and he presents arguments to show that the heart was suffering from lack of the physiologic stimulus for its contractions supplied normally by the suprarenals. This suprarenal asystoly, as he calls the resulting syndrome, is characterized by a large heart with low arterial pressure. Drawing the finger or a stick along the skin leaves a white mark instead of the usual red mark. There is often complete arrhythmia and auricular fibrillation, with more or less dyspnea.

Digitalis has little effect in these cases, but suprarenal extract had a manifest beneficial action. Early and systematic suprarenal extract treatment may ward off or retard the otherwise inevitable fatal termination. He gives the details of three such cases showing the marked improvement under suprarenal treatment. The white line disappeared in two or three days and the blood pressure rose. It seems probable that the suprarenals become exhausted by their efforts to supply the physiologic stimulus to the enlarged heart, but tuberculosis is probably also a frequent factor in the suprarenal insufficiency. Three of his seven patients with this suprarenal asystoly had tuberculous lesions. In treatment it is necessary to distinguish which of the symptoms are to be ascribed to suprarenal incompetency and which to cardiac incompetency and give suprarenal treatment or digitalis accordingly. He found that extract of the total gland seemed to act quicker and better than epinephrin alone. He gave it by the mouth, 0.4 gm. a day, in two doses, or by subcutaneous injection of 1 c.c. a day. This treatment not only supplies the lacking physiologic stimulus for the heart's functioning but it also aids the suprarenal glands to recuperate. A table is given showing the comparative weight of the heart and total suprarenals in his four cases that came to necropsy: The ratio was 104:1; 98:1, and 55:1, while in twenty-two other cadavers it ranged only from 15:1 to 38.6:1.

35. **Puncture of Pericardium Through the Epigastrium.**—This entire number of the *Paris Médical* is devoted to the heart and vessels. Lereboullet describes cases to demonstrate the advantage of puncturing a pericarditic effusion through the epigastrium, especially when it is a complication of acute febrile rheumatism. Epigastric puncture is not only exploratory but curative, while it is practically harmless and is particularly useful in tuberculous pericarditis and the pericarditis with Bright's disease. Even when the effusion is small, this technic gives confidence to the physician and has repeatedly proved a life-saving measure in Lereboullet's hands. In one instructive case a young man had a first attack of severe acute articular rheumatism, with signs of pericarditis with effusion, and the condition was evidently progressing to a speedily fatal termination. Puncture a little to the left of the median line, just below the xiphoid appendix, permitted aspiration of 180 gm. of a serofibrinous fluid with traces of blood. The puncture was followed by severe pain in the epigastrium, hiccup and tendency to syncope, but these symptoms subsided after an injection of morphin in camphorated oil. The young man was left with a mitral lesion but he had quite recovered from the pericarditis. With gonococcus pericarditis, even a small effu-

sion is liable to entail considerable dyspnea, and puncture through the epigastrium, releasing even as little as 50 gm. of fluid, may completely transform the clinical picture. It seems as if the intracardiac nerve ganglia must suffer from the presence of any effusion, regardless of its size, and the relief from this after puncture explains the surprising benefit.

For puncture through the epigastrium, the patient half sitting up in bed, a lumbar puncture needle is introduced just below the xiphoid appendix, on the median line. The handle is then lowered so that the needle slants upward close to the inner side of the sternum, as if trying to shave it. When it has entered for 4 cm. in a child or 5 or 6 cm. in an adult, the tip should be in the pericardium, and at almost its lowest point. By keeping to the median line the peritoneum is not entered, and the muscle fibers of the diaphragm are avoided. Except with much distention of the abdomen from meteorism, or malformation of the sternum, as in the funnel-shaped thorax, the epigastric puncture can be applied with confidence whenever a pericarditic effusion is suspected as responsible for the serious symptoms. With purulent pericarditis, especially pneumococcus pericarditis, the puncture should be followed at once by pericardotomy. In one case the attempt was made to get along without this, but it finally became necessary after twenty punctures had failed to cure. When the effusion is mainly or entirely back of the heart, it is evacuated best by puncture from the back, through the posterior left seventh interspace.

36. **Differentiation of Functional Heart Murmurs.**—Among the differentiating signs mentioned by Weil are that the points where the murmur sounds loudest are not exactly the same as with organic murmurs. The murmur is not exactly at the apex and not exactly over the valves; it may be most pronounced midway of the sternum. The murmur is not propagated like an organic murmur but dies out where it is born, and the sound is soft, veiled as it were. Functional murmurs are systolic but they do not occupy the entire systole; they usually commence after the first heart sound and finish before the second. The variability from day to day, and during repose and exercise is the most marked characteristic of functional murmurs. During the examination they may change their seat, their rhythm and tone, and they do not occur regularly with each systole. As a rule they are most distinct when reclining, and they are modified by deep breathing and exaggerated by emotions and muscular work. After running a few yards, a second murmur may appear at base or apex when there was only one before. Pressure on the eyeballs arrests functional murmurs as a rule. The heart beat is retarded at the same time. If the patient then runs a few yards the murmur reappears, but can be arrested anew by pressure on the eyeballs, while the accelerated heart beat drops from 120 or 140 to 80, 60, 40 or even 25. Organic murmurs are increased by pressure on the eyeballs as a rule. In some cases, as this abolished the noisy functional murmurs, it disclosed a small mitral murmur previously unsuspected. To determine the functional capacity of the heart, with or without an organic lesion, the behavior of the heart beat and blood pressure after a slight standard exercise is the criterion. With a capable heart the pulse increases from about 70 reclining to 80 standing, and to 90 after a slight exercise but the blood pressure shows little change standing and rises only about 10 mm. minimal and 40 mm. maximal and soon drops back to normal with the pulse in repose. With a weak heart the pulse runs up notably on change of position while the maximal blood pressure does not rise or may fall, but the minimal pressure rises considerably, and all these changes persist for some time in repose. Overexcitable hearts respond like the normal heart, only in a much exaggerated form.

39. **Cardiac Insufficiency.**—Gillet and Boyé call attention to a small group of cases in which dyspnea on effort, palpitation, fast heart beat and exaggerated reaction to changes of position suggest a cardiac neurosis, but this is disproved by the tendency to cyanosis in the hands and feet and by the lack of any neuropathic predisposition. At night, reclining, everything seems normal. The blood pressure is always low. Such patients require prolonged repose, reclining, with tonic medication for the heart and general tonics. These measures applied in time may restore the heart to normal, but if left untreated this transient insufficiency will become chronic and run a progressive course.

Revue Médicale de la Suisse Romande, Geneva

June, XXXVI, No. 6, pp. 345-384

41 *Clinical Relations between Erythema Nodosum and Tuberculosis. Jaquerod.—p. 345.
42 *Technic for and Experience with Spinal Anesthesia for Operations. (Quelques remarques pratiques sur la rachianesthésie appliquée aux opérations chirurgicales.) T. Cavazzani.—p. 354.
43 The Public Health Service in the French Colony of Morocco. (Notes sur le service de santé pour les indigènes au Maroc.) F. Blanchod.—p. 359.
44 Treatment of War Wounds of the Thigh. (Quelques expérienes de chirurgie de guerre sur le traitement des fractures de cuisse.) H. Curchod.—p. 370.

41. **Tuberculosis in Connection with Erythema Nodosum.**—Jaquerod remarks that the complaisance with which physicians used to regard erythema nodosum has been somewhat shattered in the last ten years. Evidence is accumulating that associated or subsequent tuberculous lesions are not the casual coincidence formerly supposed, but bear a causal relation to the skin disease. Uffelmann suggested a clinical relation between them years ago, and Hildebrandt induced tuberculosis in guinea-pigs by inoculating with scraps from the erythematous nodes. Chauffard found a typical erythematous node develop at the point of injection of tuberculin in a tuberculous girl. Landouzy discovered a tubercle bacillus in cutting an erythematous node, and guinea-pigs inoculated with scraps from this node developed severe local and general tuberculosis. A number of inaugural theses in France have supplied further testimony. The intradermal tuberculin reaction was positive in 100 per cent. of the patients tested and an inherited tuberculous taint was often manifest. Sézary reported in 1912 a case in which erythema nodosum was followed four months later by tuberculous meningitis.

Jaquerod reports two recent cases of erythema nodosum in a girl of 10 and boy of 5, extremely severe but with rapid and apparently complete recovery. Both children had latent glandular tuberculosis and the eruption occurred several days after an acute febrile gastric upset in one case and typical grippe in the other. These intercurrent affections may have roused the torpid tubercle bacilli, and as they made their way into the blood they induced a transient tuberculous toxemia which in turn induced the erythema nodosum. The prognosis therefore is that of the underlying tuberculous infection, and there is nothing to show that those who develop erythema nodosum are more liable than others to have serious tuberculosis later. He has had numbers of patients with erythema nodosum who are now in robust health after intervals ranging up to fifteen years.

42. **Spinal Anesthesia.**—Cavazzani says that one great advantage of spinal anesthesia is that the patient can be consulted and his consent obtained if a change in the plan of operation is deemed advisable when the region is opened up. The surgeon's tranquil confidence in the anesthesia is also in marked contrast to the agitation and precipitation liable in serious operations under inhalation anesthesia. The amount injected into the spinal cavity must be adequate; he injects as a rule 0.10 gm. of novocain for operations on the regions innervated by the sacral nerves, but for the legs, abdomen or kidneys he uses from 0.11 to 0.14 gm. according to the patient's corpulence, the pressure in the cerebrospinal fluid, and his state of mind. The novocain is in a 10 per cent. solution and he draws the spinal fluid into the syringe to bring it to 2 per cent. The seated patient is then laid horizontal or the pelvis is raised a trifle. If it has to be raised much, he waits for this until the moment for it arrives. When the maximal dose is approximated, there are liable to be vomiting, headache and paralysis of movement, but they are transient. In the hundreds of cases in which he has applied this technic he has never had any other pathologic phenomena at the time or later that could be referred to the lumbar injection, but he would restrict its use to operations on or below the kidneys.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 1, XLVI, No. 27, pp. 833-864

45 Twin Pregnancy at Term, Eclampsia, with Fracture of Skull from Fall at First Convulsion. Recovery after Cesarean Section. (Eklampsie und Unfall.) R. Schweizer.—p. 833.

46 *Arrhythmia. (Klinisches über die unregelmässige Herztätigkeit.) H. Ryser.—p. 839. Concluded.

July 8, No. 28, pp. 865-896

47 Experiences in a German Military Hospital Near the Front. (Aus einem Lazarett.) W. Knoll.—p. 865.

48 Tuberculosis and Life Insurance for Soldiers. (Tuberkulose und Militärversicherung.) Hauser.—p. 887.

46. **Arrhythmia.**—Ryser's article is continued through three numbers, as he discusses the chief forms of arrhythmia. The finer differentiation of the various types now possible has already given results in diagnosis, prognosis and treatment, as the experiences here related abundantly testify. He emphasizes anew that any and every form of arrhythmia can occur as a transient or persisting functional disturbance in an otherwise normal heart muscle, and reiterates that even the severest type of arrhythmia gives no information as to the condition of the myocardium. Not the arrhythmia in itself determines the prognosis but the conditions in which the arrhythmia occurs. Disturbance in conduction may be of a harmless nature, as, for instance, after influenza. With diphtheria, however, it is of evil import as we know that diphtheria may seriously menace the heart. In discussing tachycardia he comments on the fact that the attacks may be brought on by factors acting on the position of the diaphragm or modifying the circulation, possibly in an apparently insignificant manner. In any event, emptying the bowels may give relief and ward off recurrence. Even vomiting or passage of flatus may abort an attack. The prognosis depends on the strength of the heart and its ability to stand the strain of the tachycardia. In young persons with sound or but slightly impaired hearts, whose attacks are not very frequent and do not last more than a few hours at most, the tachycardia does not seem to be dangerous and almost always has a favorable outcome. There is no specific treatment, but an ice bag to the heart always gave some relief in his cases, and retching or an enema may aid. Ryser once promptly aborted an attack by the vagus pressure method. Digitalis also may aid; by its action on the vagus it brings the heart back into its normal pace. An intravenous injection of strophanthin also has accomplished this in some cases on record.

The respiration seems to have the most marked influence on sinus arrhythmia. This "respiration arrhythmia" must by no means be considered as a sign of incompetency on the part of the heart. It occurs almost exclusively in the young and healthy who are not using their minds much at the time. Study of this type of arrhythmia confirms anew that the respiration reflex on the heart, like other reflexes, is subordinate to the highest centers, which have an inhibiting influence on them. If any attempt at treatment is made, it should be merely to call the mind and body into play, thus striving to accelerate the pulse and make it more regular. He says of pulsus aternans that it is usually a phenomenon of the pulse rather than of the heart. It is the expression of an alternating variation in the amount of blood expelled from the heart at each beat, and this depends on conditions in the circulation independent of the heart's energy, as a rule. Only when the systoles are of unequal length is the heart itself responsible for the alternating pulse, and the mechanism of the heart's action is not disturbed even then. Pulsus alternans owes its evil reputation to the fact that it is usually associated with arteriosclerosis or kidney disease. As a mere phenomenon of the pulse it requires no treatment.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 25, XXXVII, No. 51, pp. 801-816

49 *Small Epidemic of Cerebrospinal Meningitis. M. Vivaldi.—p. 805.

July 2, No. 53, pp. 817-832

50 Pathology and Treatment of Neuroses of the Blood Vessels. (Alcune considerazioni sulla patologia e terapia delle angioneurosi.) P. Ercolani.—p. 820.

July 7, No. 54, pp. 833-848

51 Operative Treatment of Skull Wounds; Twenty-Nine Cases. (Contributo alla cura chirurgica delle ferite del cranio.) O. Ortali. —p. 835.

49. **Epidemic Meningitis.**—The mortality was 35 per cent. among the thirty-two cases. Two of the young men had complicating thrombosis of the right femoral vein and deafness. One child was left with paresis of the right arm and one with embolic iridochoroiditis. One of the patients who seemed to have almost entirely recovered died in a few hours after return of symptoms and general paralysis. Necropsy revealed anemia and edema of the brain substance while the ventricles were distended with a limpid and sterile fluid. This case taught the necessity for immediate lumbar puncture at the slightest sign of return of symptoms even late in convalescence. In another case necropsy showed that adhesions had walled in the fluid in the ventricles. The specific meningococcus was found in all but five cases and Gram-staining diplococci in these.

Policlinico, Rome

July 2, XXIII, No. 27, pp. 837-864

52 Culture Mediums for Cultivation of Cholera Germs. (Sui terreni Dieudonné ed Aronson nella diagnosi batteriologica del colera.) S. Minelli.—p. 837.

53 Ten Months in the Medical Corps at the Italian Front. (Dieci mesi di servizio sanitario in guerra.) T. R. Doria.—p. 840. Concluded.

54 Sugar in the Urine from the Standpoint of Life Insurance. (La glicosuria e l'assicurazione-vita.) I. Romanelli.—p. 844.

June, Surgical Section No. 6, pp. 161-192

55 Cystic Tumor in Hernial Sac. (Sui tumori intrasaceulari dei visceri erniati.) G. Campora.—p. 161.

56 *Muscle Flap to Repair Large Gap in Wall of Pharynx and Larynx. P. L. Della Torre.—p. 171.

57 Experimental and Clinical Study of Ligation of Coronary Vessels. (Legatura separata e simultanea delle arterie e delle vene coronarie del cuore.) L. Dominici.—p. 181. Continued.

56. **Repair of Gap in the Throat Wall.**—A farmer fell on a sharp iron spike which tore a square gap in the wall of the pharynx and larynx, about one fourth of its circumference. Loss of blood was combatted with hemostatic clamps and tamponing, and the breach was repaired with a flap of muscle and fascia tissue, 10 by 6 cm., taken from the abdominal wall. The illustrations show how the flap was applied to rebuild the wall and also to reduce and hold in place the fractured hyoid bone with the upper end of the flap. It was fitted over the bone with U sutures taken along the entire width of the flap to complete the tunnel in which the bone lies. The operation was a success, the rebuilt air passages functioning perfectly. The voice is natural except for a little hoarseness. The flap was made large enough to extend for some distance beyond the gap, to ensure its nourishment. The jagged and soiled wound—the hyoid bone and the thyroid cartilage were quite denuded—rendered the outcome dubious and the complete success is all the more remarkable.

Siglo Medico, Madrid

June 24, LXIII, No. 3, 263, pp. 401-416

58 Heart Block in Man of 62. (Caso de automatismo ventricular con fibrilacion ventricular.) L. Calandre.—p. 402.

59 *Atypical Forms of Tuberculous Meningitis. B. Gil y Ortega.—p. 406.

July 1, No. 3264, pp. 417-432

60 Arsenic and Tuberculin in Treatment of Pulmonary Tuberculosis. J. A. M. L. de Guevara.

61 Wet Packs to Control Fever. (La sabana humeda.) P. Noguera.

59. **Tuberculous Meningitis.**—In Ortega's first case, in a girl of 7, tuberculous meningitis was accompanied by hyperesthesia of the skin so intense she could not bear the slightest touch. The child died the twenty-fifth day, the hyperesthesia persisting to the end. The second patient was a young woman who died the ninth day after the onset of severe headache, with slight fever, and extreme prostration passing into complete and persisting coma the third day. In the third of this trio of atypical cases of tuberculous meningitis, the patient was a woman of 24 who had been presenting symptoms of acute pulmonary tuberculosis during a pregnancy. The seventh day after delivery at term of a nonviable child, the woman developed maniacal excitement,

with the senses abnormally acute. It was impossible to make a physical examination at first, but the patient's strength rapidly declined and the signs and symptoms of involvement of the meninges in the tuberculous process were soon apparent, with a fatal termination three weeks after the childbirth.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 1, II, No. 1, pp. 1-96

62 Pituitary Treatment in Obstetrics. (Pituitrine-inspuitingen bij de baring.) M. M. De Monchy.—p. 5.
63 *Progressive Myopia and Its Treatment. W. Koster.—p. 17.
64 Workings of the Workmen's Compensation Law. (Eenige opmerkingen over de practijk der ongevallenwet 1901, in verband met art. 61 en den strafrechter.) D. De Snoo.—p. 26.
65 *Operative Treatment of Rebellious Trigeminal Neuralgia. (Trigeminus-neuralagie en de behandeling der hardnekkige gevallen.) L. J. J. Muskens.—p. 32. Concluded.
66 Cure of Hysteric Deafness by Hypnosis; Two Cases. (Genezing van twee gevallen van hysterische doofheid door hypnose.) I. Zeehandelaar.—p. 41.

63. **Progressive Myopia.**—Koster agrees with Donders that there is usually disease where there is myopia. This is beyond question with severe progressive myopia, and the clinical course and effects of treatment reveal the ocular affection as a primary infectious chronic chorioretinitis. Any degeneration observed is of secondary nature. In treatment the patient and parents must be warned to refrain from taxing the eyes beyond what is strictly necessary, and all exercises, games, etc., must be avoided that are liable to induce congestion in the head. General treatment is important; for this he alternates mercury and potassium iodid for two weeks each, keeping this up unmodified if the myopia continues to progress by the end of six months but the vision has shown no impairment. If there is any decline in vision while the myopia progresses, he keeps the patient in bed for six weeks with daily inunction of 3 gm. of mercury, supplemented by radium treatment of each eye for five hours at weekly intervals. If there is much hyperemia or signs of a tendency to chronic cyclitis, he gives a course of atropin. The eyes are given complete rest therewith. If there are any contraindications to mercury, he gives a course of salicylates instead, with iron and a strengthening diet.

After such a course of treatment the eyes can be used systematically a little and the further development of the case watched. He deplores that he can so seldom induce patients to take this regular course of treatment. The time required, the expense and the dread of mercury combine to make patient and parents shrink from it. Sometimes all he can get consent for is a brief course of radium treatment and protracted medication with small doses of mercury, the salicylates, iodids or iron, but he insists that these must be kept up for years.

Progressive myopia with detachment of the retina or other serious complication he treats in the same way, aiming to retain vision as good as possible in the comparatively sound eye. He declares further that even a slight degree of accommodation is harmful in time for eyes with progressive myopia. The hyperemia induced by accommodation aggravates the infectious process.

He has had many years of experience with treatment based on the above premises. Some patients with myopia of 20 and more D. have had it arrested at this point, so that the myopia was retarded so that the progress grew very slow and vision was less impaired than in the untreated. He adds that the results of operative treatment have proved so unsatisfactory in the long run that operative measures now have been generally abandoned. Koster's study and treatment of simple myopia was summarized in these columns August 5, abstract 89.

65. **Operation for Rebellious Trigeminal Neuralgia.**—Muskens' discussion of the best method of relief for inveterate neuralgia was given, with a description of his technic, in abstract 87 in THE JOURNAL August 5. Instead of gasserectomy he crushes the nerves just below. He here gives the minute details, with illustrations, of the five cases in which he has applied his method, with full details as to the sensory phenomena after the operation. The patients were three women between 58 and 69, and two men of 53 and 34. The last mentioned was operated on in 1904, after twenty-five years of trigeminal neuralgia, and he has had no further trouble during the twelve years since, occupying the responsible position of train-despatcher.

Hygiea, Stockholm

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67 *Severe Diabetes Mellitus with Atrophy of Thyroid and Pituitary Body and Lipemia in Boy of 16. (Ett fall av svår diabetes mellitus med multipla endokrina rubbningar.) S. Lindblom.—p. 721.
68 *Primary Sarcoma of the Trachea. S. Berggren.—p. 765.
69 Industrial Arsenic Poisoning. (Om arsenikundersökningar.) P. Klason.—p. 776.
70 *Otogenous Abscess in the Brain; Three Cases. (Tre fall av otogen hjärnabscess.) N. Witt.—p. 783.
71 Ear Speculum. (Ett nytt öronspeculum.) G. Richnau.—p. 789.

67. **Diabetes with Multiple Endocrine Derangement.**—Lindblom's retrospective diagnosis after necropsy is that the internal secretion of the pancreas was first at fault, possibly as the result of severe osteomyelitis over three years before. The patient was a boy of 16, and unusually severe diabetes developed, fatal the sixteenth month. His urine contained from 600 to 800 gm. sugar a day. Owing to the reduced functioning of the pancreas, the thyroid and hypophysis were spurred to excessive functioning, which in time entailed atrophy of both, with resulting functional insufficiency of both. The symptoms from this were benefited to some extent by organ therapy. Toward the last, lipemia of 17.55 per cent. and after death 12.8 per cent. was found in the blood. As the lipemia developed, pustules formed on the limbs and around the mouth, the pustules containing mostly fat. In connection with his case Lindblom discusses analogous observations on record in which diabetes and myxedema were associated, and the mechanism for this and for the lipemia in his case. The suprarenals in his case seemed to be normal but there were signs of excessive functioning. His conclusion from the data presented is that although the hormones of the panereas and thyroid are antagonistic yet the organs themselves stimulate each other, so that excessive functioning of one spurs up the other, and hypofunction of one entails hypofunctioning of the other. The same relations prevail between the pancreas and the pituitary body. This assumption would explain the frequent coincidence of diabetes and obesity, diabetes mellitus and insipidus, and the cases of myxedema and diabetes cured by thyroid treatment. The lipemia in his case is readily explained by the augmented mobilization of fat and the reduced oxidation of fat from the disturbances in the endocrine system.

68. **Sarcoma of the Trachea.**—Berggren adds another to the twenty cases on record of primary sarcoma of the trachea. As a rule they seem relatively non-malignant; his is the only case in which metastasis is known, and there has been no sign of recurrence during the four months since the operation to date. The patient is a man of 56 who had had a dry cough for twenty years but otherwise had been healthy. During the last six months his voice had become hoarse and he had been short of breath but there were no disturbances in swallowing and no weakness. The pedunculated tumor was in the upper part of the trachea, on the anterior wall, about as large as a hazelnut, and roentgenoscopy showed an enlarged pretracheal gland and a bunch on a rib, both of which were evidently metastases. The tumor was removed from without and with it the enlarged gland; the rib was also resected, and prompt recovery followed with no signs of recurrence to date. In two of the twenty cases in the literature the patients were children of 11 and 13. In Betz's case the tumor was 5 cm. long and hung down like a polyp into a bronchus. Death occurred from sudden suffocation, the tumor having evidently been drawn up into the trachea which it plugged completely. In one case there were several tumors, with broad base and smooth surface.

70. **Otogenous Abscess in the Brain.**—One of Witt's three patients was a young man who had had bilateral purulent

otitis since childhood but was otherwise robust until, four days before the operation, he had developed headache and dizziness and vomited frequently. There could be no question as to the existence of an otogenous abscess, but on which side? There were no focal functional symptoms. The radical operation was done on the right side, but no signs of an abscess were found. As the symptoms persisted, a week later the dura was incised and pus found and drained, fully 10 c.c. of pus being thus evacuated. A complete cure of the otitis on that side followed. The second patient, a girl of 14 was also cured by evacuation of a large abscess in the temporal lobe, with one cavity 5 cm. deep. She had had otitis two years before which had apparently healed, and there had been no symptoms until the last month she had had headache and a bloody purulent discharge from the ear. Both patients were given hexamethylenamin and recovery was prompt and complete. The third patient had had acute otitis for only a week when there was an epileptiform seizure and symptoms of meningitis. An abscess was found in the temporal lobe but the meningitis continued and soon proved fatal.

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72 *Operative Treatment of Brain Tumors; Twenty Cases. (Radikaloperation ved Hjernesvulster.) V. Christiansen.—p. 927.

73 *Spasm of the Cardia. (Kardiospasme.—Dilatatio œsofagi.) E. Madsen.—p. 947.

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74 *Chronic Gastric Ulcer Presenting the Characteristic Niche in Roentgen Picture. (8 Tilfælde af Ulcus ventriculi chron. frembydende Haudecks Nischesymptom.) J. E. Mauritzen.—p. 985.

75 Impacting of Twins Simultaneously in Pelvic Outlet; Two Cases. (2 Tilfælde af Kollision mellem Tvillinger.) A. Tofte.—p. 995.

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76 *Abderhalden's Dialysis Reaction in the Tuberculous. (Abderhalden's Dialysereaktion hos Ftisikere.) V. Petersen.—p. 1031.

77 Positive Wassermann Reaction with Venereal Ulcer Calls for Treatment as for Syphilis. (Om positiv Wassermann's Reaktion ved Ulcus venerum, samt om Betydningen af en mere fintmærkende, selvom mindre specifik Wassermann's Reaktion.) C. With.—p. 1054.

72. **Brain Tumors.**—Christiansen is chief of the neurologic clinic at Copenhagen, and he here reviews twenty recent cases in which he diagnosed a tumor in the brain and helped to locate it for surgical removal. Four of the eight patients with a tumor in the motor area were materially benefited by the operation and a number of the ten with a tumor in the cerebellopontile angle. Improvement in the treatment of brain tumors all depends, he declares, on the general practitioner recognizing in their incipiency the insignificant symptoms which indicate the beginnings of a brain tumor. Few realize that brain tumors are so common, and yet rare indeed are the cases in which they can be removed in time to avert irreparable injury. In several of his cases the symptoms had seemed to indicate an inoperable tumor, but when the tumor was exposed it was found that it could be easily shelled out, after which the general and local symptoms promptly subsided. This encourages an attempt at operative measures in the most apparently desperate cases. Cortical convulsions in one case, affecting one side only, including the shoulder, returning during three years with long intervals of apparently perfect health, were diagnosed at first as functional, but later the paresis which followed the convulsions became permanent, and the thigh muscles atrophied, with sensory disturbances. The man had occasional attacks of headache, still more rarely vertigo, and once transient double vision. A glioma was found in the left motor area but it blended with the surface of the brain and seemed to be malignant. However, except for ataxia of the right side the symptoms have subsided and the man, fifteen months after removal of the tumor still feels entirely well. Heachache, occasional vertigo and transient double vision were the first symptoms in other cases clinically cured by the operation. In another there had been a few convulsions at puberty. In this and in a second case in a man about 38, slight paresis and atrophy of one arm developed with spasms of the face muscles on that side. In these cases the trouble was a subcortical cyst, and both men recovered after its removal, but in one case the cyst returned and seems now to be returning for the third time.

Cerebellopontile tumors are usually easily shelled out and they induce warning symptoms early in the domain of the cranial nerves, especially deafness and abnormal vestibular and corneal reactions. These, with optic neuritis, suggest a tumor. In one case the deafness had been noticed for several years. In others there was cold paresthesia on one side, including the face, or dizziness or vestibular disturbances. A typical vestibular attack, with aura, subjective noises and dizziness, is characteristic of cerebellopontile mischief. Lumbar puncture revealing abnormal proportions of albumin but no pleocytosis and no Wassermann reaction, is also typical. Roentgen examination seldom gives positive findings but occasionally is very instructive. In one of his fatal cases, fibromas were found also in the esophagus and stomach. In another case a woman of 60 for several years had had attacks of dizziness, and finally headache and somnolency with fleeting double vision. The operation revealed fibrous changes in the dura, and at necropsy a month later, a fibroma was found in the cerebellopontile angle, and others elsewhere.

Of the ten angle tumors, two of the patients are still living fifteen and seventeen months later although it is dubious whether all the growth was removed at the translabyrinth operation. One of these patients had had symptoms for ten, one for two years. The growth was no larger than a hazelnut in either case. One patient died from the effects of lumbar puncture before the operation had begun. Choked disk rapidly retrogresses after removal of an angle tumor and sometimes after merely a palliative intervention. In one patient the trouble proved to be diffuse sarcomatosis.

73. **Cardiospasm.**—Madsen expatiates on the importance of Roentgen examination in puzzling conditions in the stomach and intestines, relating a case in which erroneous conclusions had been previously drawn as the contraction of the cardia prevented ingress of the exploring catheter into the stomach and the tip had doubled back when it was supposed to have passed straight into the stomach. The patient was a clerk of 20 and he had had stomach trouble for eight years. The esophagus was much dilated, the mucosa hanging like a loose curtain from top to bottom, but nothing suggesting ulceration could be seen. Prompt improvement followed daily introduction into the cardia of an inflatable bag made with an unelastic silk netting between two layers of rubber. While the bag was in place the esophagus was rinsed out. Marked improvement was evident in a week and recovery was soon complete.

74. **Chronic Gastric Ulcer with Recess Shadow.**—Haudeck called attention in 1910 to the peculiar shadow cast by a gastric ulcer that had a crater extending deep into the wall of the stomach. The bismuth enters this crater, pushing the air before it, thus casting a shadow, projecting like a finger with an air bubble above. This projecting "niche" shadow remains for a time after the stomach has been otherwise emptied. Mauritzen here relates the details of eight cases of chronic gastric ulcer of this deep boring type. In all, this niche sign was pronounced, and all the patients recovered after resection of the ulcer into sound tissue. The stomach was of hour-glass shape in seven. He regards this niche sign as pathognomonic of this type of ulcer, and declares that it calls for immediate operation.

76. **Abderhalden's Dialysis Reaction in the Tuberculous.**—Petersen comments on the contradictory nature of the literature on this subject to date, and devotes ten pages to the tabulated details of his own experience with 108 tuberculous patients and 12 healthy persons. Using tubercle bacilli as the antigen, a positive response was obtained in 42 per cent. of the healthy; in 80 per cent. of his patients in the first stage of tuberculosis; in 57 per cent. of those in the second stage, and in 46 per cent. of those in the third stage. The dialysis test made with tubercle bacilli or tuberculous gland tissue seems to be a specific reaction for tuberculosis. But it affords no information whether the tuberculosis is active or inactive, and is no aid in the prognosis of the concrete case.